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HOW TO MAKE GREAT PICTURES

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P.68

LEARN TO
LOVE THE RAIN Art Wolfe's guide to spring landscapes P.48

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PETER HURLEY

Back to School

Producing this month's cover story, "Do the Basics Better" (page 54), turned out to be a blast—and it took the input not just of our entire editorial team but also that of a whole bunch of eager art school students.

It all started when we were working out how to present a compendium of photo tips in a single story. It struck us that all photographers, from beginners to top professionals, face many

of the same challenges. How do you shoot with a steady hand? How do you balance your exposure? Or keep your shot from being ruined by ugly mixed light? These are the essential skills of photography. They sound basic, but even experienced shooters may find there's a better way.

To demonstrate some of these techniques, we decided to enlist not just pros but also people at the start of their journey as photographers. Our photo editor, Fiona Gardner, also teaches a studio lighting course at Pratt Institute. She had brought her class of (mostly) sophomore photo majors to visit us. So why not, she suggested, have us shoot at Pratt's Brooklyn campus and let the students be our models and assistants?

Besides Fiona, of course, we sent four editors: Debbie Grossman (the story's main editor), Jeanette Moses (shooting video for PopPhoto.com), Peter Kolonia (how-to guru), and Stan Horaczek (shooting stills for the magazine and web). Phil Ryan and I, as well as our art director Jason Beckstead, stayed at the office, weighing in as the crew sent images from the shoot—a process that fascinated the students. Even Sara Cravatts and Julia Silber got into the act, delivering the Alta Pro 253CT carbon fiber tripod and PH-22 head we'd borrowed from Vanguard to use as a prop.

"It was invigorating," Pete says. "The way the students lit up with interest was inspiring." Pratt's huge, luxurious studio also impressed our lighting columnist. "They had really high-level studio equipment. As a student, you learn the stuff you'll use when you're at the top or when you're assisting. But you don't necessarily learn the kinds of practical things that ordinary photographers without a lot of money need to do."

Debbie adds, "Almost everything that we did seemed new to them. What was cool about having a bunch of other photographers in the room is that they could learn from a lot of people at once." Even she learned some new tricks.

I love how our big how-to feature turned into a real-life lesson. For the kids, and for us, too.

Miriam Leuchter



NEWSSTAND Nikon steps up its game with the new D5500, a winner of an entry-level DSLR, tested on page 68 and photographed for us by Satoshi.

SUBSCRIBER Split neutral-density filters make all the difference in balancing the sky and land. Rodney Lough Jr. shows how to use one best, page 54.

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NOVEMBER 13-22, 2015

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Delhi, India's capital city, encompasses all of the exciting contrasts of a country balanced between the historic and the modern. Start the day driving along the Rajpath and take in Asia's largest mosque, the Jama Masjid. A ride on a rickshaw will take you to the heart of Old Delhi, allowing you to savor the sights, smells and sounds of this vibrant neighborhood.

Travel to Varanasi, on the bank of the holiest of all Indian rivers, the Ganges, and embrace the opportunity to photograph the many locals as they immerse themselves in the cleansing water. Next, journey to the historic city of Agra, home of the majestic Taj Mahal,

and capture this architectural marvel of white marble in the glowing light of dawn.

On to Jaipur, the "Pink City," an essential stop on any tour of India. Known for the faded rosy patina of much of the cities' buildings, Jaipur is home to many visually impressive historical sites including the Hawa Mahal or "Wind Palace," and the massive Amer Fort.

After exploring Jaipur, we will venture to Pushkar, a tranquil town that lies along the sacred Pushkar Lake. Home to one of only a few temples in the world dedicated to Lord Brahma, Pushkar is one of the five sacred pilgrimage destinations for Hindus in India.

Final stops in the "Blue City" of Jodhpur and the Bishnoi Villages will complete this captivating journey of one of the most compelling photo destinations in the world. India thrives on its rich past and colorful heritage, and the Mentor Series is thrilled to bring this breathtaking opportunity to you.

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REED HOFFMANN

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DAVID TEJADA

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- Compelling story telling

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SHOWCASE * HD PENTAX-DA 20-40MM F/2.8-4 ED LIMITED DC WR



STREET SCENE

Our assistant online editor Jeanette D. Moses shot this portrait in the Bushwick section of Brooklyn, NY. Working with the HD Pentax-DA 20-40mm f/2.8-4 ED Limited DC WR lens on a Pentax K-3, she shot at 20mm (30mm full-frame equivalent) and f/8 at 1/125 sec, ISO 125, to get a wide view and keep both her subject and the wall behind him relatively sharp. See our full lab and field test of this lens on page 74.





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THE HOT

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ROAD WARRIOR

Elinchrom ups its game with a new Quadra

Elinchrom has improved upon its near-perfect—but soon to be discontinued—Quadra Hybrid location strobe with the Quadra ELB 400. With recycle times up to 20 percent faster, increased power range (6.9 stops, up from 6.6),

better battery capacity (350 full-power pops up from 320), a brighter modeling light (20 watts, up from 15), and more rugged build, the ELB 400 is improved on every front.

A battery rescue feature that can revive a seemingly dead cell and an intuitive OLED control display were unexpected perks. The ELB 400

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16

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20

BIG STEP

Nikon beefs up its key enthusiast DSLR model

WITH A SPOT near the top of Nikon's APS-C-format DSLR line-up (just below the aging D300s), the new D7200 could turn out to be its best mid-range model yet. It offers a handful of key upgrades over its predecessor, the D7100. While the 24.2MP sensor offers only a slight uptick in pixel count, Nikon removed the optical low-pass filter in a bid to eke

out more resolution. Its new Expeed 4 image processor got a big boost, letting you capture 27 12-bit or 18 14-bit RAW files, or 100 JPEGs at 6 frames per sec, before the buffer fills. Nikon also updated its 51-point autofocus system and claims that it will work even in light as dim as -3 EV. And built-in NFC and Wi-Fi



The D7200 is kitted with this 18-140mm f/3.5-5.6G VR zoom for \$1,700, street.

NEWS FEED

➤ Paul C. Buff, innovative founder of the lighting company that bears his name, died at the age of 78.

➤ Lomography released the Petzval lens, a 85mm f/2.2 portrait lens based on a Petzval design from 1840. With funds raised through Kickstarter, the classic lens has been updated to work with Canon and Nikon SLRs.



BRIGHT EYES

PANASONIC STILL benefits from jumping first into the ILC pool and participating in the Micro Four Thirds consortium. Witness the big stable of lenses for its Lumix bodies—a benefit shared by Olympus, whose cameras also accept this glass. But Panasonic has kept pretty quiet on the lens front lately, so we were delighted when it announced this new pair of fast, image-stabilized

Panasonic Lumix 42.5mm f/1.7 ASPH
Power O.I.S.
\$400, street panasonic.com

A pair of fast lenses for Micro Four Thirds

mid-telephoto optics, both to hit stores in May. The 42.5mm f/1.7 has the full-frame equivalent focal length of a classic 85mm portrait lens, while the 30mm f/2.8 macro equates to a 60mm, also nice for portraits. The longer lens, unsurprisingly, focuses only to 12.2 inches, but the macro, with a true 1:1 magnification ratio, can focus on subjects as close as 4.1 inches.

Panasonic Lumix G Macro 30mm f/2.8
ASPH Mega O.I.S.
\$400, street panasonic.com

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NEXT * JUST OUT



ALPHA BETS

Sony builds out its E-mount lens line

WHEN SONY launched its Alpha a7 line of full-frame ILCs in late 2013, it promoted adaptors to use lenses from other systems. But those adaptors may start gathering dust as Sony keeps bringing out more FE glass—including four appealing new lenses, three primes, and a zoom due out this spring and summer.

The 28mm f/2 is the widest of the primes, and is also the least costly: \$450 for a fast, compact model that seems tailor-made for street photography. At the other end of the price spectrum at \$1,600, is another street

shooter's dream, a collaboration with Zeiss—a 35mm f/1.4 Distagon T* ZA. The other two fall in between. For more flexibility, there's a 24–240mm f/3.5–6.3 OSS with on-board image stabilization. And here comes the system's first mid-tele macro lens, a stabilized 90mm f/2.8 Macro G OSS, with a 1:1 maximum magnification ratio.

If you own a Sony APS-C-format ILC, like the a6000 or NEX model, all these lenses will work. Just multiply the focal length by 1.5 to get the equivalent on your body's smaller sensor.

NEWS FEED

> Olympus announced the release of the Stylus SH-2, a successor to the earlier SH-1 advanced compact. The two are almost identical except for one major addition: RAW capture.

> Instagram launched Layout, a photo collage app that allows you to assemble your edited photos without using a third-party application. Layout allows you to get creative with your images, and offers templates for up to nine different photographs at a time.

Sony FE 28mm f/2
\$448, street; available in May
sonydigitalimaging.com

Zeiss Distagon T* FE 35mm f/1.4 ZA
\$1,598, street; available in April

Sony FE 90mm f/2.8 Macro G OSS
\$1,098, street; available in July

Sony FE 24–240mm f/3.5–6.3 OSS
\$998, street; available now

MIGHTY MICRO

Tons of memory in a teeny card

SMARTPHONE shooters rejoice! If your device uses a tiny microSD card for removable memory, as Android phones and tablets do, you may never need to remove it

again. That's because SanDisk managed to cram a full 200GB of file space into its newly announced Ultra card—enough for tens of thousands of photos or nearly a whole day of HD video footage. And for the clumsy and accident-prone among us, the less we handle those easy-to-lose mini-cards, the better!

SanDisk 200GB Ultra microSDXC UHS-I
\$400, estimated street
sandisk.com

New Software

Phase One Capture One Pro 8.2

Studio pros know Capture One best, but this popular software is catching on with enthusiasts, too—this update supports Nikon's D5500, Fujifilm's X-A2, and other new ILCs. Version 8.2 (\$299 or \$10/month; phaseone.com) adds a tool to tackle tricky mixed light in RAW conversion: 3-Way Color Balance gives you tonal control in the highlights, shadows, and midtones. Workflow tools have also been enhanced.

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NEXT * ROUNDUP



Vanguard's top-loading Havana 21 looks more like a casual purse than a camera bag.

NEWS FEED

>To make sure every surface of your camera is sealed tight to keep out dirt and grime, consider a hot-shoe cover. Nikon Japan released an official stainless-steel tab for its DSLRs that will protect your camera's electronics and looks cool too. Try not to lose this one!

>The Impossible Project introduced black-and-white 600 Generation 2.0 film, its fastest-developing instant film yet. A new chemical solution produces an image in just 20 seconds.

>App developer Defrozo turned to Kickstarter to produce its free, all-in-one photographer business utility. As a web-based platform, Defrozo hopes to help photographers display, store, and send their work to others easily. If it works, this could be great for pros and part-timers.

TOOLBOX

TAKE A HIKE

MANFROTTO teamed up with ski and trekking equipment maker Fizan to design a line of outdoor gear for photographers. The Off Road series includes backpacks and color-coordinated tripods, but the item that got our attention was the paired walking sticks for hikers (\$99 per pair, street).

Made of lightweight aluminum and available in red, blue, or green, the sticks have spiked feet and come with accessory sand/snow baskets and rubber feet for different types of terrain. The coolest part is the threaded camera mount built into the handle of one of the sticks so you can use it as a monopod along the trail.



THE LOWDOWN

SONY TO EXIT CCD MARKET

According to a report by Allied Vision, an industrial and medical camera supplier, Sony will cease production of CCD sensors as early as March 2017. While Sony has said it will continue to ship already-produced CCDs through at least 2020 (and Allied Vision seems confident it can meet the needs of its customers), it remains to be seen how will affect the compact camera market, some of which still use CCDs.

LOW-KEY BAGS

BACKPACKS TEND to get most of the attention these days, but many photographers, especially those carrying smaller cameras, still prefer a discreet shoulder bag. Here are some of the latest models.



Vanguard Havana 21 \$40 This safari-style bag is the littlest in a line that includes backpacks and messengers. But for an ILC or small DSLR, plus a lens and flash, this size is just fine. It even has an inside pocket for a 7-inch tablet. Pull out the camera-holder insert to use the bag sans gear.



Tenba Switch 7 \$80 It looks like plain black faux-leather, but this little bag (the smallest of three in Tenba's Switch line) can be used with different fabric covers (\$18 each) to change the look. These come in colors and patterns ranging from flamingo pink to black-and-gray camouflage.



Think Tank Urban Approach 5 \$120 The trimmer of two new messengers in this line, it can still hold an ILC or small DSLR with a few lenses and even an 8-inch tablet. Thoughtful touches include Velcro-silencing flaps, water-repelling nylon construction, and metal hardware.



Crumpler 7 Million Dollar Home \$150 This rugged nylon messenger can hold a fair amount of gear, even a big DSLR and 70-200mm f/2.8 lens, though there's no dedicated compartment for a tablet. Two removable straps let you carry a tripod on the front.



Kelly Moore Kate Messenger Bag \$199

This big, leather-trimmed canvas bag with durable brass hardware has a removable camera basket with room for a DSLR, long lens, flash, and other gear. A structured bottom adds to stability. It even holds a 13-inch laptop.



Artisan & Artist COV-7000N \$339

Sometimes you want a more incognito style, even when hauling a DSLR, three lenses, and a laptop. This tough tote, the smaller of two matching models, resembles a regular handbag, but it packs plenty of padding.



"Give your portraits a professional, polished glow in just a few minutes."

Digital Photo Sept/Oct 2014



FAST, EASY-TO-USE PORTRAIT EDITING SOFTWARE

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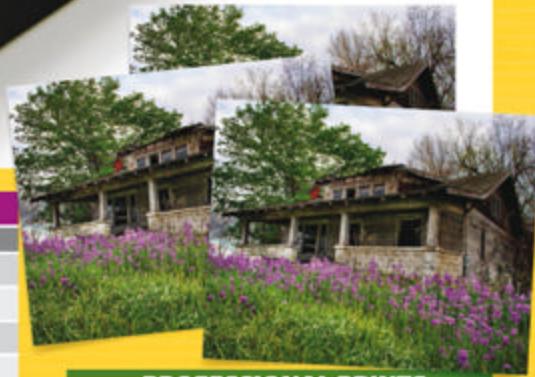


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PHOTO CHALLENGE

HOT DOG

Classic studio style wins our canine portrait challenge

HAVING RETIRED from his career in information technology years ago, Ramon Rosario, 70, began experimenting with photography in 2008. His subjects of choice quickly became his adorable dogs, one of whom stars in this classic shot.

With a goal of capturing his black-coated pup Gigi against a black background, Rosario built the backdrop in his garage at home in Lancaster, California. He shot with a Nikon D800 and Tamron SP 28-75mm f/2.8 XR Di lens, using a Paul C. Buff Einstein

Ramon Rosario used a Nikon D800 and Tamron SP 28-75mm f/2.8 XR Di lens; exposure with strobe was 1/250 sec at f/18, ISO 100.

640 watt-seconds strobe as the light source. The shoot itself only took 10 minutes—Rosario talked to Gigi nonstop and waved a treat in the direction he wanted her to look to keep her attention focused for this professional-looking image. —*Sara Cravatts*

NEXT PHOTO CHALLENGE

In "Shoot in the Rain" (page 48), photographer Art Wolfe shares his expert tips on photographing nature at its wettest. Send us your best rainy-day shot by May 31, and you could earn \$100 and your story here. Read the rules at PopPhoto.com/contests.



TWO OF A KIND?

Mother and daughter on their animal bond

ROBIN SCHWARTZ got the name for her daughter from a friend's capuchin monkey: Amelia. For years, she tucked Amelia and their white whippet, Becky, into

bed together. When Amelia was three, Schwartz photographed her with a two-year-old chimpanzee named Ricky (top row): The two are wrapped around each other, not quite smiling but content and comfortable in each other's arms.

For 13 years, Schwartz has

chronicled her daughter's unique relationship with animals ranging from the family's numerous pets to gibbons, kangaroos, and giraffes. Her ongoing series, *Amelia and the Animals*, has led to two books with Aperture (*Amelia's World* in 2008, and *Amelia and the Animals* in 2014).



View more of this series and others on robinschwartz.net.



The bottom right photo on the opposite page shows Amelia and a two-month-old baby grizzly bear from The Zoological Wildlife Foundation-Zoo Miami, a recent and previously unpublished image.

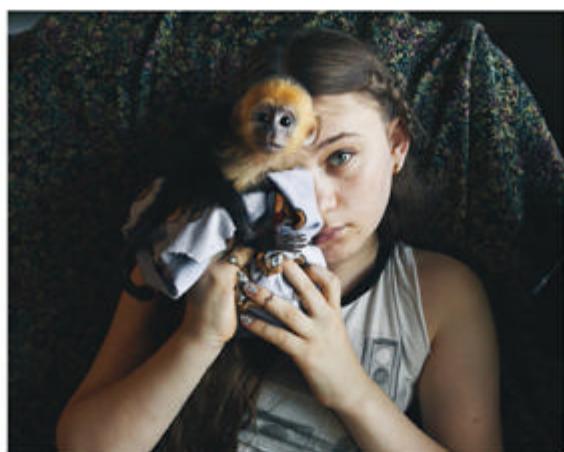
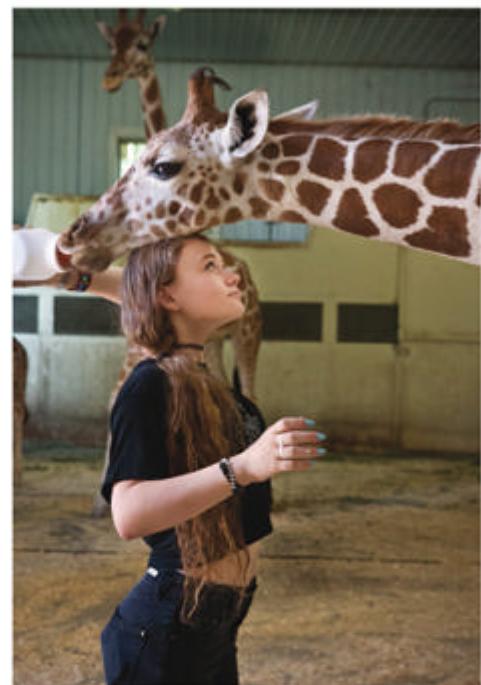
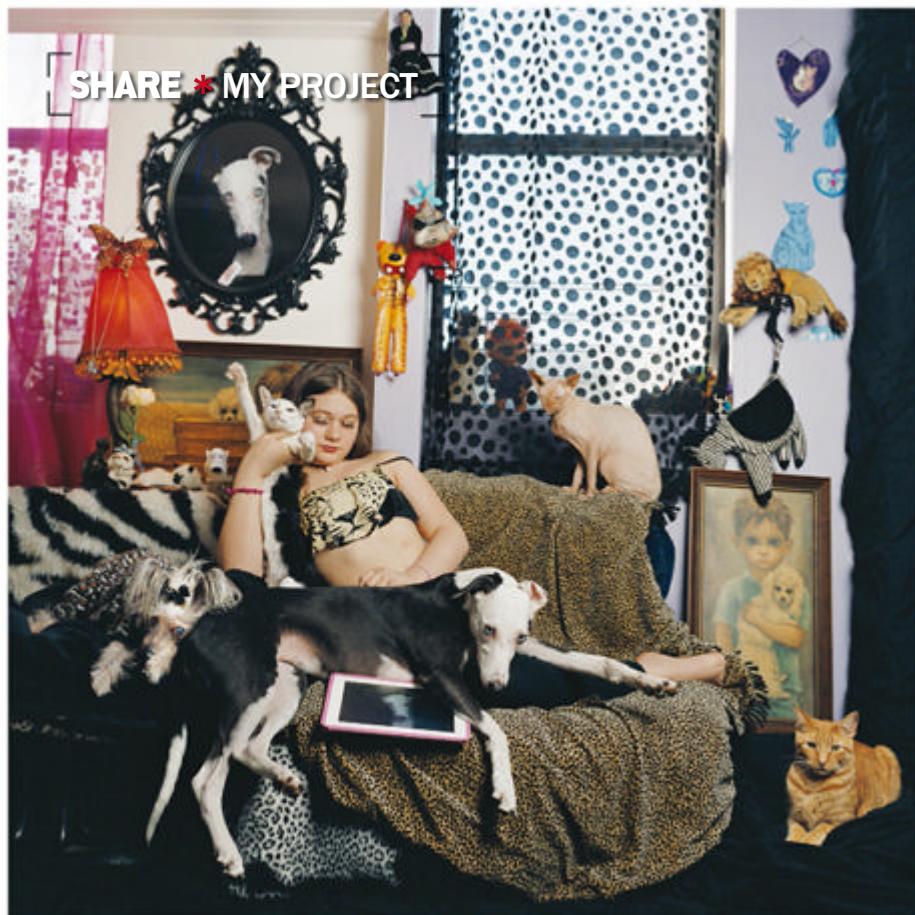
Her work presents animals not as pets or exotic creatures, but as cohabitants of this world. "I wanted to [show] that [Amelia] could communicate with the animals—that they had an understanding, that the animals weren't props to her, but she was engaging with them and they were engaging with her," says Schwartz.

Many of the first Amelia photos were shot on film with a Mamiya 7, often in outdoor settings with

lots of natural light. Now Schwartz shoots anywhere, using a Canon EOS 5D Mark III outfitted with a 24–70mm f/2.8L Canon EF lens and on- and off-camera flash. While her previous projects were rooted in photojournalism, for *Amelia and the Animals* she looked to painters such as Marc Chagall, Henri Rousseau, and even Margaret Keane (whose "No Dogs Allowed" is in the background of an image on the next page).

In photographing this series, Schwartz remains conscious of location, background, light, and fashion—which Amelia has taken control over now. What direction she does give Amelia comes from a practiced understanding of how to best photograph her. But the project's most emblematic moments, Schwartz says, are spontaneous, not posed, and reflect her subjects' symbiosis. "I don't want some really good-

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looking dog sitting next to her, I want her to be touching the animal, to have a relationship," Schwartz says. "As she gets older, she's able to do that in a more coherent way."

As much as *Amelia and the Animals* represents Schwartz's interspecies ideal, it's also a chronicle of mother and daughter. The project began as a bonding exercise and a way for Schwartz to lift herself out of the depression

that followed the deaths of both her mother and mother-in-law. Now it's a partnership and collaboration—one that Amelia, now almost 16, feels withstands their personality differences and parent/teenager clashes. "If we're not getting along," Amelia says, "we're like, 'OK, let's make this shoot good.' We have a common goal, which helps us work together. And I also get to spend more time with my mother."

Adds the photographer, "Amelia is me in the pictures. She's also her; but she's also me. A better me, a different me. I doubt I would've been able to pull this off—I don't like having my picture taken. But Amelia is tough. She handles these situations with grace. And I'm not always easy on her: 'Chin to the right, up, down.' She deals—especially for a teenager working with her mother."

—Jon Blistein

"The animals bring out my empathy—they're so human-like, so relatable," Amelia says. "And I try to bring them out of their shell if they're shy, or calm them down if they're jumping around."

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STUDY IN CONTRASTS The warm-toned flowers in Heine's foreground contrast with the cool-toned overcast skies in the distance, letting him strongly separate these elements.

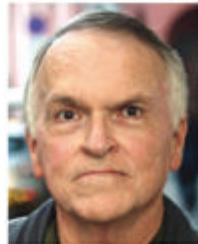
MEDIEVAL MAGIC

Scotland casts a spell on this Texan

DUNNOTTAR CASTLE is a romantic relic, evocative of Scotland's Middle Ages. Sitting in solitude on the North Sea coast, the castle posed an intriguing challenge for Popular Photography Mentor Series participant Gerry Heine, a retired municipal administrator from Waxahachie, Texas. Heine wanted strong foreground, middle-, and background interests to give depth to his photo (above), but also wanted his picture to reflect a sense of the castle's isolation.

To achieve these seemingly mutually exclusive goals, Heine chose a wide-angle lens to minimize the size of the castle while expanding the swath of empty sky above it.

"The mentors had suggested we look for different angles or perspectives for our images, so I walked around exploring the rugged landscape surrounding the castle," he recalls. Finally, he spotted these fireweed flowers and used them to repeat the sloping diagonal line of the middle-ground hill. This knit the composition together and gave the photo a touch of color.



GERRY HEINE
His next photo adventure with us will take the photographer across the wilds of Iceland this summer.

Heine says his most important travel photography tip is being ready for the unexpected. "I usually take two camera bodies, one with a wide-angle lens and another with a telephoto lens, both with lens caps off, turned on, and ready to shoot."

A veteran of almost 20 Mentor Series trips, Heine has seen many beautiful landscapes. "Scotland's scenery was spectacular," he says. The ruins of St. Andrew's cathedral in Fife were among that trip's highpoints for him. "The many castles were all impressive," he says. "We also photographed the Glenfiddich Distillery, where we learned how to properly taste single-malt scotch." For more from Heine's many photo-rich adventures, visit gerryheinephotography.com.

—Peter Kolonia

GERRY HEINE (CASTLE); DAVID TEJADA (PORTRAIT)

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GOTCHA!

"Plating" (Photo Glossary, April 2015) doesn't come from the printing industry but from old-fashioned movie special effects, the original, primitive but exceedingly finicky form of building an image in layers. The background or foreground of a shot could be replaced by traveling mattes and several passes through a pin-registered printer. The layers were called a "background plate." And perhaps they took the term from even earlier days, when the backgrounds actually were glass plates from view cameras. **John Lord**
via PopPhoto.com

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THE ARTICLE

"Chinese Treat" (Mentor Series, April) was supposed to be about photographing a cormorant fisherman on the Li River of Chengdu. The Li River goes through Guilin and Yangshuo, China, not Chengdu. Cormorant fisherman seen by tourists are between these two towns. The main river of Chengdu is the Mingjian. Chengdu is more noted as a place to see pandas.

Don Hirschfeld
via PopPhoto.com

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VISUAL JOURNEY

Our winners create a sense of narrative unfolding



3rd Place \$100 Prize

SHARKAWI CHE DIN, 45, SENIOR LECTURER, KUALA LUMPUR, MALAYSIA

While photographing in the Pasar Siti Khadijah market in Kelantan, Malaysia, Che Din wanted to capture the everyday scenario of a woman selling produce. He used a high vantage point to emphasize the natural patterns in the scene and to add impact. Then he simply waited for money to change hands before releasing his camera's shutter. **TECH INFO:** Sony Alpha a6000 with 16-50mm f/3.5-5.6 OSS Sony E PZ Power Zoom lens; 1/160 sec at f/5, ISO 500. Edited in Adobe Camera Raw 8.1 and Photoshop Creative Cloud.

2nd Place \$200 Prize

RAVIKANTH KURMA, 30, NETWORK ENGINEER, CHENNAI, INDIA

Ravikanth Kurma was looking for a fresh perspective when he photographed the Jal Mahal water palace. He shot at dawn to avoid tourists and discovered many locals coming to feed the pigeons. As he composed his frame to capture the three structures in the water he noticed the patterns the birds made as they crossed the lake. "I wanted to fill my complete frame with birds," he says. Unsatisfied with his initial results, he returned to the same spot at the same time the next day to make this image. He increased contrast and recovered shadows in Adobe Camera Raw 8.7 and boosted Vibrance in Photoshop CS6. **TECH INFO:** Canon EOS 5D Mark III with 16-35mm f/2.8L Canon EF II USM lens; 1/250 sec at f/8, ISO 800. Edited in Photoshop CS6, ACR, and Nik Dfine V2.



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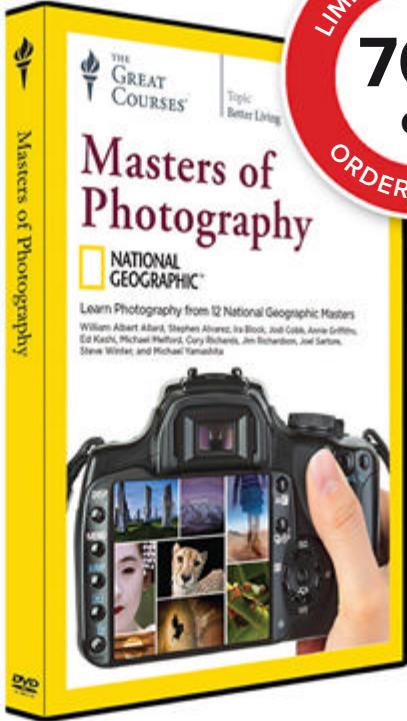


1st Place \$300 Prize

PATRICK HOCHNER, 58,
ENTREPRENEUR, KYOTO, JAPAN

Patrick Hochner witnessed geishas walking swiftly to meet their patrons at local teahouses many times before he managed to capture the moment. He positioned himself on a Kyoto street, set his camera's lens to hyperfocal distance, and waited for a young woman to come rushing by. "My idea was to use a motion effect to visually recreate this scene, this walking speed," he says. Hochner used a wide aperture and slow shutter speed to capture the movement. He cropped, color balanced, and added a slight vignette to finish the image.

TECH INFO: Nikon D810 with 24-70mm f/2.8
Nikkor AF-S ED lens; 1/25 sec at f/2.8, ISO 1600.
Edited in Photoshop Lightroom 5.7 and onOne
Perfect Effect 9.



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CREATIVE THINKING

GO WITH THE FLOW



Adding movement and drama to fashion

FOR A FASHION photography group exhibition in 2013, Baltimore-based pro Michael Patrick O'Leary composed scenes that were as much about

movement, action, and drama, as they were about clothing. The photographer—who also serves as the director of photography for music video, commercial, documentary, and feature film projects—says his goal with his work

for this show was to grab viewers' attention in more visceral ways than fashion photography normally does. "I wanted motion and emotion," he recalls.

As with O'Leary's other images from this series,

For more of O'Leary's creative work, visit michaelpatrickoleary.com

MICHAEL PATRICK O'LEARY

capturing the image shown here posed a number of creative, aesthetic, and technical challenges. While movement was important to his concept, the photographer couldn't let his main subject, the garment, take a back seat to any other pictorial element. To that end, "I attempted to draw the viewer's eye from left to right, leading it to designer Karen Geralde's dress," he says.

To create that feeling of movement, O'Leary used continuous hot lights with an open shutter to capture the motion blur in the billowing fabric. Then, to freeze the model and bodice in what he calls "this sea of movement," he popped a strobe.

"Timing was the most challenging part," he says. He had to coordinate the two exposures, one relatively long, and the other instantaneous. "I was shooting 2.5-second exposures under hot lights and I triggered a strobe when I felt the emotion was right," he recalls. He had only had a split second to react and fire the strobe that would freeze the model's body language and facial expression. "There was a very fine line between getting it exactly right and getting nothing," he says.

Did O'Leary meet the motion and emotion goals he set for himself? We think so. The model looks attractive and the flowing background of contrasting warm and cool tones has a fire-and-smoke dichotomy that catches and holds the eye. And despite all the elements competing for attention—her hair and jewelry, for example—the dress is still the star of this show.

—Peter Kolonia

FIX IT FAST



VITALI HANTSEVICH

RED FIX

Contrast reds and greens for interest

IF THE NAME rings a bell, Vitali Hantsevich won our Photo Challenge in March with a great shot of Tibetan prayer flags. This month, we offer his Canyonlands National Park scene, originally submitted for Your Best Shot consideration. We liked it a lot, but the picture needed something.

For starters, it had a yellow-green cast and flat contrast. Using Adobe Photoshop 6, I applied a high-pass filter over the background to give the sky more structure; then I opened a color balance adjustment layer and tweaked its blue channel to tamp down the yellow.



A more serious issue? The picture needed a point of interest. To give the foreground more presence, I masked it out and applied a Curves adjustment (Luminosity mode) to the sky, which darkened it significantly. Then, to pop the foreground colors, I selected the vegetation and lowered its red with a Curves adjustment, and did the opposite for the reds in the soil, reducing green for cleaner warm tones there. Total Fix time: 15 minutes.

—Fiona Gardner

PHOTO GLOSSARY CINEMAGRAPH

THIS RELATIVELY recent type of photograph combines still and video in a single image. Often published as animated GIFs, they are viewable on digital displays and are growing in popularity in advertising and across social media sites. Typically, only a small portion of the otherwise still image shows movement, and novice viewers are often surprised to see motion in an image they imagined was a still. Cinemagraphs are produced by shooting still and video of the same scene and then layering the two files in a Photoshop plug-in. A mask is applied to the stack, allowing a section of the video to show through the otherwise still image. (The still image can be a frame pulled from the video clip.) Among the most popular plug-ins is Cinemagraph Pro by Flixel. For numerous examples of cinemagraphs, visit its website at flixf.com.



LAKE VIEW

Why the Second City comes first for many photographers

“MY FAVORITE Chicago shoot themes fall into three categories: skylines, architecture, and neighborhoods,” says Alan Klehr (aklehr.com), who has been photographing there for 25 years. “Having incredible 19th-century buildings juxtaposed with art deco, neoclassical, modernist, and gothic buildings makes for wonderful photos.”

The city’s skyline is compact (just 16 blocks long and 8 blocks wide), and the fact that it borders a lake and has a river running through it only adds to the visual potential, says Klehr. “Standing by the Adler Planetarium on South Lakeshore Drive gives an unobstructed view of the entire skyline with a wide expanse of the lake in the foreground.” For a different perspective, he recommends heading to North Avenue Beach. “It offers a totally different angle on the skyline, plus your photos will incorporate the lake, beach, and lakefront bike path.”

Oak Street Beach on North Shore Drive offers a wide sandy beach bordering the high-rise buildings. “Midday can be hazy, but dawn, early morning, sunset, and early evening are all great,” he says.

Chicago is also known for its hodgepodge of eclectic neighborhoods, with more than 200 at last count. “My favorites are Wicker Park and Pilsen,” he says. “Wicker

Local pro
Scott Fishman
captured
the famous
Chicago
Theatre
marquee
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24-70mm
f/2.8G AF-S
Nikkor ED
lens.

Park is the funky, arty, hipster neighborhood that is filled with colorful cafes, galleries, tattoo parlors, art studios—and it is always changing. Pilsen was originally a neighborhood of Czech immigrants, but now it’s mostly Hispanic, though it’s slowly becoming more diverse. This makes for a colorful and exciting area for photos.”

—Jeff Wignall

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• **WRIGLEY FIELD** 1060 W. Addison Street

No photographer who is also a baseball fan could visit Chicago without seeing the Cubs’ shrine of a stadium, built in 1914. Group walking tours (\$25 per person) take 75 to 90 minutes and visit the seating bowl, press box, bleachers, visitors and Cubs’ clubhouses, the Cubs’ dugout, and the field (about a mile, all told). Personal VIP tours are also available. Rain or shine. chicago.cubs.mlb.com



BIKE LIGHT

Use lighting to showcase a location

NEW YORKER Laura Barisonzi shoots cycling professionally (among other sports), so it helps that she's a passionate cyclist herself. One day while riding along a course just outside of New York City, she zoomed down a hairpin turn and noticed a nearby rock formation that reminded her of a

section of an alpine racecourse. Her creative juices began to flow: Why not try to stage a scene straight out of a road racer's dream? The result was the picture shown here.

When the day of the shoot came, Barisonzi's inspiring location presented her with a number of

With the help of lighting, Laura Barisonzi suggested an alpine location, although the setting is in New Jersey.

exposure challenges. That rock wall, for example, was nestled into a fold in the hillside, where it received very little light. Adding to that challenge, both cyclists arrived clad in black, riding black bikes. Barisonzi had envisioned capturing the cyclists taking the hairpin turn at high speed, leaning into the curve to form dynamic diagonal lines. That kind of speed, however, could be difficult to freeze photographically.

Location strobe lights helped the photographer meet each of these challenges.

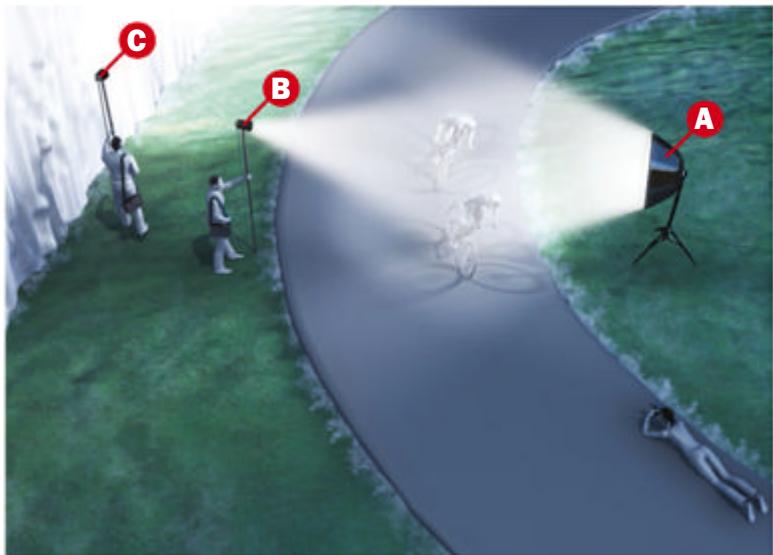


She started by positioning three Elinchrom Ranger location strobes as shown in the diagram. By using one strobe to light the rock wall, she brought out its texture and character, as well as creating some visual separation between the wall and the cyclists. The Rangers' instantaneous strobe pops also helped her sharply capture the fast-moving athletes. In this kind of scenario, says Barisonzi, "you can take your game to the next level by having someone aim and angle your lights for you." Her two assistants did just that.

Barisonzi shot with a Nikon D800 and 24-70mm f/2.8G ED lens, exposing for 1/250 sec at f/7.1, ISO 400. Her strobes were fired wirelessly with Pocket Wizard Plus II remotes.

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SIMPLE  COMPLEX



KRIS HOLLAND/MAGIC STUDIOS

Laura Barisonzi lit the two downhill bicycle racers using three battery-powered Elinchrom Ranger 1100 WS location lighting kits. She housed the main light in an Elinchrom 39-inch Rotalux Deep OctaBox (A) that she placed equidistant from the cyclists, assuring that both would be equally illuminated. She then put a bare reflector on a second Ranger (B) to rim light the cyclists and help them separate from the rocky backdrop. Finally, she snapped a 20-degree grid spot (with reflector) onto the third Ranger (C), creating a more contrasty sidelight to bring out texture in the rock wall. Crucial to her success, she says, was achieving enough depth of field to render both the front and rear cyclists in sharp focus. An aperture setting of f/7.1 did the trick. "Elinchrom has good solutions for location shooting," says Barisonzi. "Their kits are portable, durable, and freeze action well. The battery pack delivers a lot of pops per charge."

THE GEAR



Elinchrom 39-inch Rotalux Deep OctaBox (\$324, street)

Ranger RX Power Pack

Elinchrom Location Kit Power Pack (\$2615 for kit, street)

Nikon AF-S 24-70mm f/2.8G ED zoom (\$1687, street)

Other tips from this pro:

- Set up lights and determine exposure with the athletes standing in position.
- Imagine and plan the shots beforehand. Describe to your subjects in advance exactly what behaviors and positioning you expect from them. It can be a time saver once the shooting starts.
- Budget time to repeat the action many times in order to get the image you want.

- When shooting fast-moving sports, "decide if you're going to move with the subjects or stay stationary," says Barisonzi. "If you're stationary, it allows for more repeatability. If you are moving with the action, your photos will show more variety between shots."
- Wear an orange vest. "I almost got taken out by a motorcycle while I was shooting. "Next time I'll pay more attention to personal safety!"

—Peter Kolonia

HOW * SOFTWARE WORKSHOP



BEFORE



AFTER

SIMPLE

COMPLEX

FIX THAT COLOR

Three great ways to remove color casts

MOST OF THE TIME, your camera captures fairly accurate color, whether it does so using automatic white balance or using a setting you choose. But when you shoot in mixed lighting, or if the colors of your subject's clothes or the walls around her reflect onto her skin—or for any number of other reasons—you may get some

unrealistic hues. I shot this image with a studio flash, but the overhead tungsten light, normally used to light the room, caused a warm, golden cast on the subject, her clothing, and the backdrop.

As with most processes in Adobe Photoshop, there are multiple ways to correct color casts. Here I'll show you three different methods using Adobe Photoshop Creative Cloud 2014's version of Levels, Curves, and Adobe Camera

This portrait had a yellow cast; we fixed it using Curves. But you can try any one of these three easy methods to go neutral.

RAW. You can choose the one that works best for you.

—Theano Nikitas

SOFTWARE

Photoshop Creative Cloud 2014

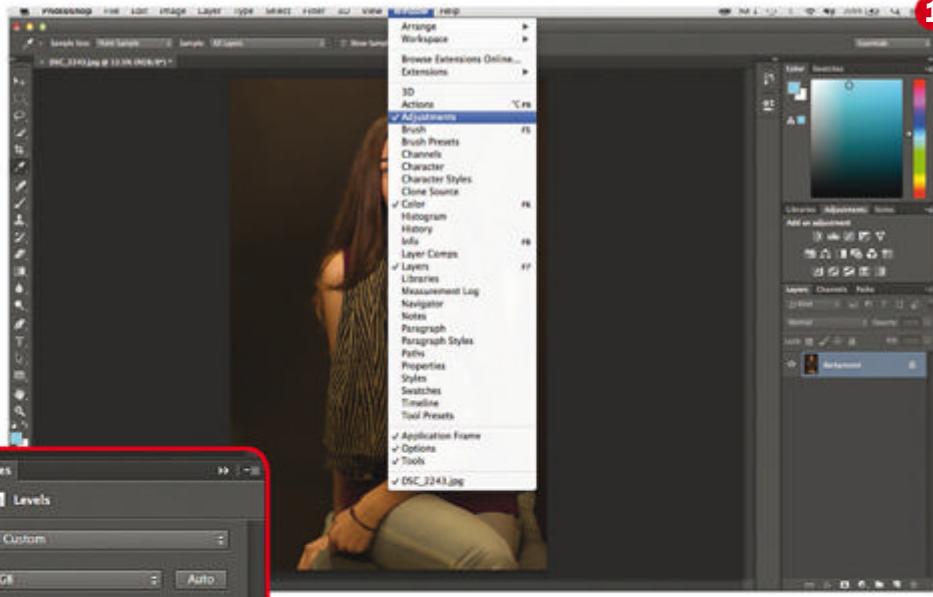
These tools are common to many applications, so if you don't have Photoshop CC, you may still be able to use these editing methods.

METHOD ONE: LEVELS

Step 1

Set up your gray.

To get started with Levels, look for the Adjustments panel on the right side of your screen. If you don't see the panel, go to Window > Adjustments. Then click on its Levels icon (second icon, top row). Double-click on the gray point eyedropper (center) and make sure that RGB levels in the Color Picker are set at the same value. In this case, they are 128. Adjust gray point values if necessary; if the values are different, you could end up imparting a color cast instead of going neutral. Click OK when done.



Gray Dropper

Use the gray dropper (circled) in Step 2 to neutralize a cast. You can use the black and white droppers to set black and white points too.

Step 2

Apply a gray point.

Find an area that represents a neutral part of the image. I chose the black backdrop. Make sure the eyedropper for the gray point is still selected, then click on the neutral area that you selected. This changes the dense black backdrop to a slightly more neutral dark gray and also removes the color cast from the entire image.

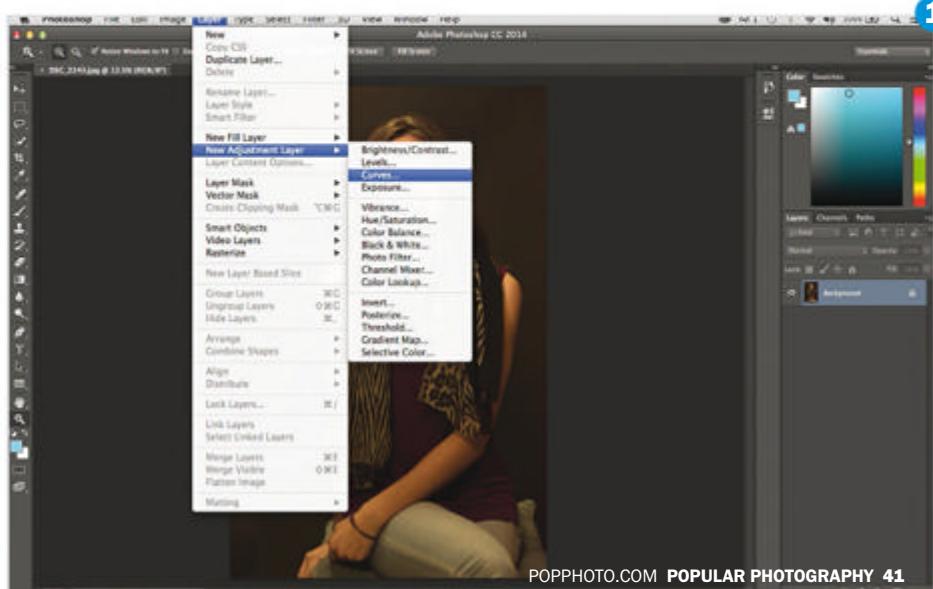


METHOD TWO: CURVES

Step 1

Choose a color to lose.

With the Adjustment Panel open (Window > Adjustments), select Curves (third icon, top row) or go to Layer > New Adjustment Layer > Curves. Single-click the on-image adjustment icon at the top of the Curves tool list (it's circled in the inset image on the next page). Select the color channel you need to adjust from the drop-down menu. Because this image is warm, we can cool it off by adjusting Red.



Step 2

Remove the unwanted color.

Using the on-image adjustment tool, click on the area you want to correct. Drag the tool up or down in small increments to adjust the color (up adds, down removes).

For this image, I clicked on the subject's face and moved the tool slightly down to correct the color cast. If removing one color cast reveals another, switch channels and do it again. Here, removing red revealed a slight yellow cast. So switch to the blue channel and use the same method to increase blue and as a result minimize its opposite, yellow.

Curves Adjustments

Subtracting a color in Curves adds its opposite. Memorize them for quicker corrections. The pairs are red/cyan, green/magenta, and blue/yellow.

METHOD THREE: RAW

Step 1

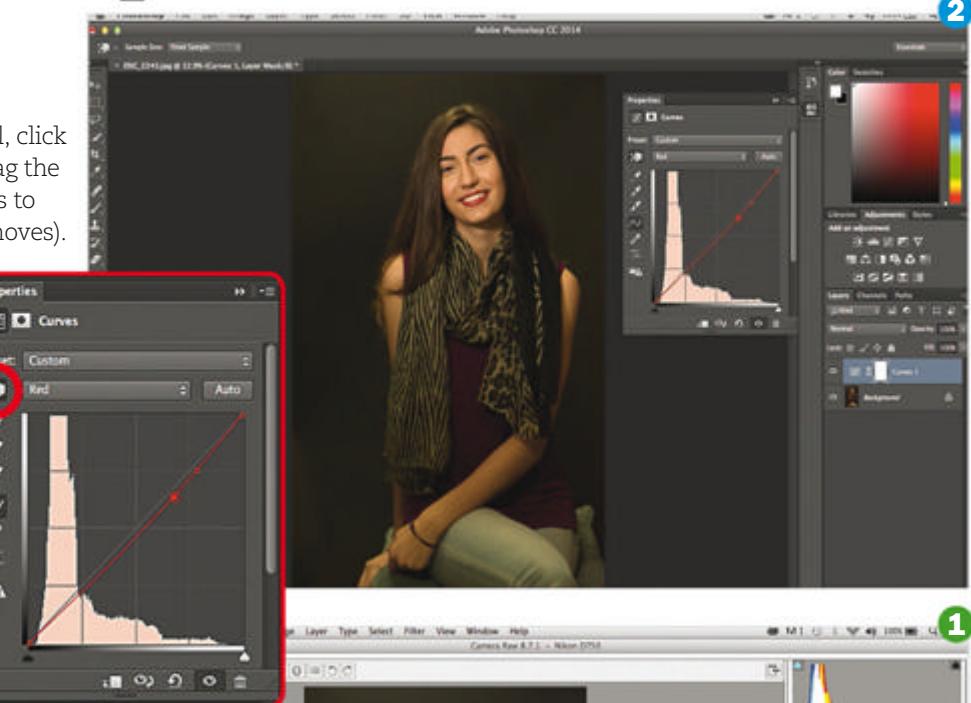
Make your first fix.

There are several ways to adjust white balance and color correct images in Adobe Camera Raw; we'll discuss two. Note that you can use ACR for JPEG and TIFF file formats, but you'll get the most accurate adjustments on RAW files. First go to the White Balance drop-down menu and select an option that improves your image. This is usually just a starting point. Here, the Flash setting worked fairly well—but it's still a little too warm.

Step 2

Tweak temperature and tint.

To remove the remaining cast, I moved the temperature slider to the left, toward the cooler, blue end of the spectrum. I also adjusted the Tint slider to the left, adding green to counterbalance the image's magenta tint. Move in small increments for both the temperature and tint until you reach the colors that look best. Click Done when you're finished.



NEW 135mm Telephotos

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*Cine DS feature**

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HOW * YOU CAN DO IT



CHRIS TENNANT

STAR POWER

AMONG ITS MANY talents, your camera can produce photos that actually show how the earth rotates. Called star trails, these images can be made with any camera that allows for long exposures. All you need is a sturdy tripod, patience, and a clear nighttime sky free of light pollution, airplanes, and cloud cover. Chris Tennant, a physicist and dedicated nature photographer from Williamsburg, Virginia, captured these trails in the fall of 2013.

"I was wrapping up a week of shooting in upstate New York, where there was little light pollution. That night there was also a new moon, the sky was cloudless, and I had a lakeside view of mountain ranges to provide an amazing foreground," he says. Tennant offers the following tips for great star trails.

• WAIT FOR THE RIGHT CONDITIONS.

Beside monitoring weather (particularly cloud cover), know the moonrise and moonset times and its phase. If you want your trails to revolve around a central vortex (as shown here), know how to find the North Star.

• EXPERIMENT WITH YOUR CAMERA'S LOW-LIGHT PERFORMANCE.

This takes some trial and error. Some cameras will introduce objectionable noise even when the shutter is open a relatively short time, while others will let you shoot noise-free for longer exposures at a given ISO. Experiment to find a combination of exposure time and ISO that works for you.

• USE A FRESH CAMERA BATTERY.

And carry a spare. Those long exposures, especially in cold weather, drain a battery fast.

• CONSIDER IMAGE STACKING.

While this technique is not necessary, the best star trails today are produced with the help of stacking software. Tennant used StarTrailStacker, a free program, to combine multiple short exposures that gave him better noise control and higher contrast in the trails thanks to darker background skies.

—Peter Kolonia

Step 1

Gather the gear. To capture a wide swath of sky, use a wide-angle lens, preferably one with a large aperture (f/2.8) for shorter exposure times, coupled with a camera that can shoot at moderately high ISOs with little noise. A remote shutter release with an intervalometer like the Opteka shown below will capture shake-free star trails.

Step 2

Scout your location. Find a spot with an unobstructed sky and compelling foreground elements. To show detail in these elements, expose the foreground during twilight and then composite it in later. Sometimes a dark, silhouetted foreground like the one Tennant chose can work, too.

Tennant exposed each of his stacked star trail exposures for 45 sec at f/2.8, ISO 1000. For more of his inspiring nature studies, visit christennantphotography.com.

Give this awe-inspiring celestial project a try

Step 3

Set up the camera. When stars become visible in the night sky, manually set the lens to focus at infinity, program the intervalometer with the desired exposure times, and set the shortest possible intervals between shots. If you allow too much time (more than 120 seconds) between exposures, composited images may show odd gaps within the trails.

Step 4

Make your exposures. Since all the objects in his scene were at infinity, depth of field was not an issue and Tennant could shoot at f/2.8. If you choose an exposure time that is too short, you will capture only the brightest stars, whereas if it's too long you risk unacceptable noise levels.

Step 5

Fix things in editing. Simple postprocessing can be limited to contrast, exposure, and sharpness moves. You will get better results, however, by compositing (or "stacking") multiple continuous trails. The freeware that Tennant uses, StarTrailStacker, is easy to find online.

THE GEAR





CONGRATULATIONS TO OUR CONTEST WINNERS!

In celebration of cable network Great American Country's new hit series *Barn Hunters*, Popular Photography partnered with GAC in the 'Hunt for Americana' photo contest, inviting amateur photographers throughout the nation to capture a piece of American nostalgia. Four grand prize

winners and four runners-up were determined based on criteria that included composition, color, nostalgia, adherence to theme and skill. On the following page we are proud to introduce our four grand prize winners and the stories behind their inspirational photographs.



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COUNTRY** 

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GREAT AMERICAN COUNTRY, sister network to HGTV and DIY Network, delivers original lifestyle programming coast-to-coast to viewers in more than 62 million US households. Hit original series include *Flippin' RVs*, *Off the Map With Shannen & Holly* starring Shannen Doherty and Holly Marie Combs, *Junk Gypsies*,

Barn Hunters, and *Flea Market Flip*, hosted by design enthusiast and *Good Morning America* anchor Lara Spencer. Learn more, and discover where you can watch GAC using the "Find Us" tool at gactv.com.



BRUCE MARTIN

Regional Winner: Northeast
Photo Name: Red Barn

“When it comes to local “sweet spots,” I’m always looking for the unusual in the usual. With a dry shooting approach, capturing images requires a higher level of awareness. The light, elements, camera, lens and right time of day are set up in my mind before I bring the camera up to my eye; in other words: pre-visualization. In my photographic travels around the world, I have found that every place is quite beautiful, but in upstate New York and New England there are places like this one that are almost Zen-like, tranquil and peaceful. This truly represents the beauty of our country that we sometimes may take for granted.”



ESTHER HUYNH

Regional Winner: South
Photo Name: The Past in Real Time

“There was a group of children who had come to visit the Renner School. After the tour guide introduced the kids to the 1800s style classroom, they went to start a game of hopscotch, but one girl stayed behind. On each desk there was a worn out children’s book filled with little stories inside. I’m not sure if she could read, but she was really into the pictures. Despite her modern athletic shoes and bright pink apparel, the girl fit in perfectly. For me, it was like looking into the past. I didn’t need to imagine what children were like back then - it was the same as now and it was right in front of me.”



JULIE McDOW

Regional Winner: Midwest
Photo Name: Branding Time

“The great American freedom that we have can only be expressed on the back of a horse at a rodeo. That takes me back 200 years, it’s the cowboy feeling. I come from a football town that was 20 miles west of University of Missouri. I never saw a horse. Then I met my husband who was a cowboy. He introduced me to that world, and I moved to the country and raised our kids. The experience is really different because it is a really cool subject matter, and I still get an adrenaline rush when I take a picture at a rodeo. I can’t explain it. Watching it, I get a thrill.”

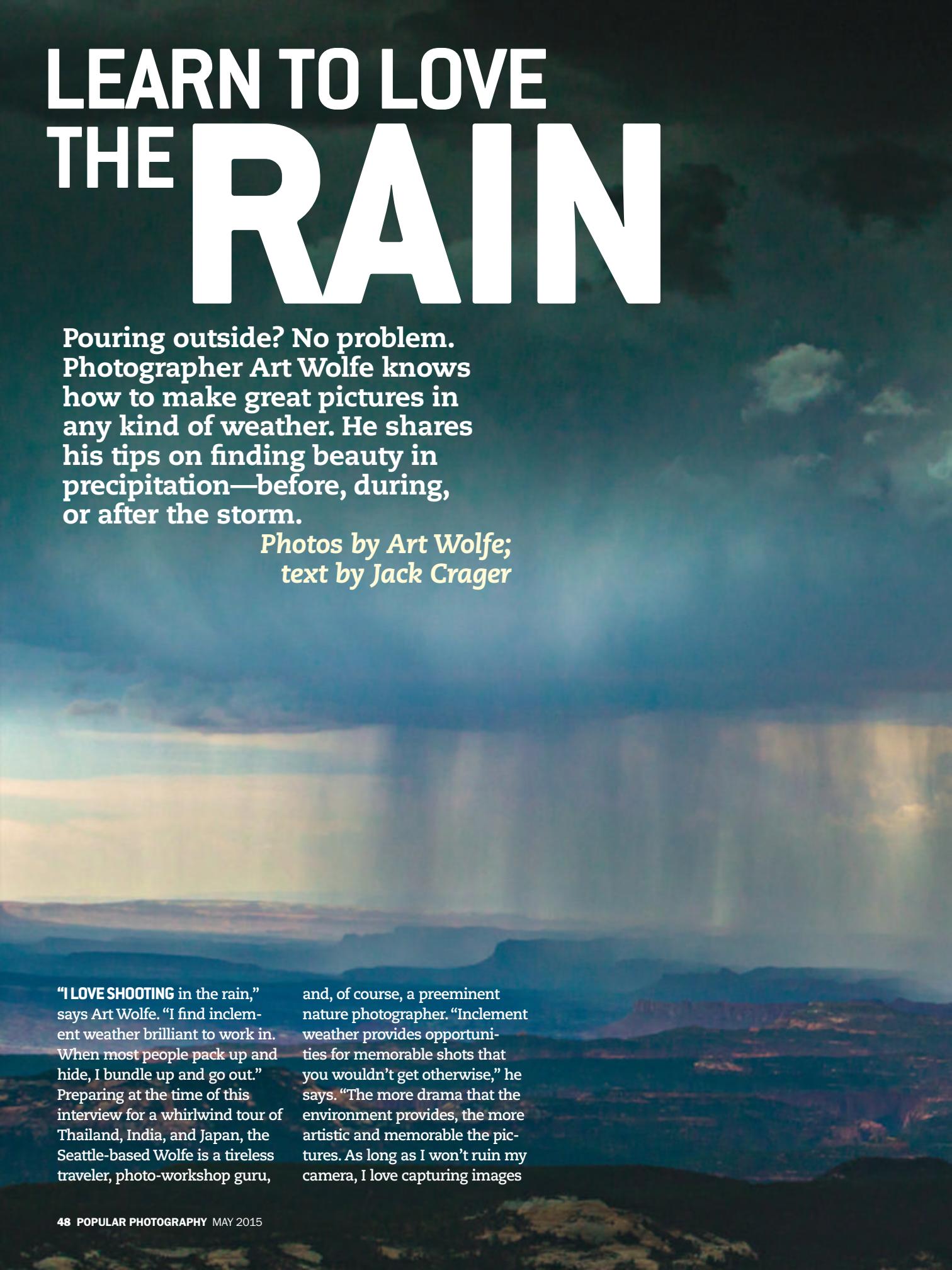


DAVID GRIMES

Regional Winner: West
Photo Name: Pioneer Sisters

“I had known Helen and Alice Dickerson from when I was a boy living on a ranch in the mountains of Colorado. As an adult, I went back to visit. As I talked to them, I was intrigued by their lifestyle: simple and un-modern but very happy. I photographed them in their daily lives doing things like fixing fences, clearing snow, checking on the ranger station two miles below their place, cooking, painting pictures and so much more. While I love the “things” that are Americana, it is the people who make us who we are, and these two ladies in their family homestead reflect the spirit of people in the West and many parts of America.”

LEARN TO LOVE THE RAIN



Pouring outside? No problem. Photographer Art Wolfe knows how to make great pictures in any kind of weather. He shares his tips on finding beauty in precipitation—before, during, or after the storm.

*Photos by Art Wolfe;
text by Jack Crager*

"I LOVE SHOOTING in the rain," says Art Wolfe. "I find inclement weather brilliant to work in. When most people pack up and hide, I bundle up and go out." Preparing at the time of this interview for a whirlwind tour of Thailand, India, and Japan, the Seattle-based Wolfe is a tireless traveler, photo-workshop guru,

and, of course, a preeminent nature photographer. "Inclement weather provides opportunities for memorable shots that you wouldn't get otherwise," he says. "The more drama that the environment provides, the more artistic and memorable the pictures. As long as I won't ruin my camera, I love capturing images

**CANYON-
LANDS,
UTAH**

Wolfe made this shot with a Canon EOS-1DS and 70-200mm f/2.8L IS Canon EF lens. Exposure 1/25 sec at f/14, ISO 50.





in adverse conditions."

To that end, Wolfe uses Storm Jacket camera-and-lens rain covers when shooting in the field in wet weather. "Or often I just use whatever's available, a plastic bag, a jacket—you know, I'm opportunistic," he says. "If suddenly there's a cloudburst and I don't have any lens protection, I will make something. I'll take the jacket off my back. I'll get drenched, but I'm going to keep the camera operating."

He notes that most DSLRs he uses are fairly watertight. While he obviously doesn't recommend, as he describes it, "holding the camera under a waterfall," a little mist prob-

ably won't hurt. After the shot, he takes care to dry off his equipment. "I try to have a little hand towel; I don't let water stay too long on the gear. It's a matter of protecting the lenses and not getting moisture within the elements. I'm not fanatic about keeping the camera dry—but I'm also not just ignoring it."

Wolfe's work shows just how wide a range of images you can get when you know how to tackle inclement weather. We asked this nature master to tell us how he captured some of his favorite pictures taken of precipitation, and to give us tips on how to make the most of any rainstorm.

KATMAI, ALASKA

**For the
rainbow
(opposite),
Wolfe used
an EOS-1Ds
Mark II and
70-200mm
f/2.8L IS
Canon EF lens;
1/3200
sec at f/2.8,
ISO 200.**

Capture a High- Contrast Storm

To photograph a tempest where parts of the scene are bright and parts are dark, as in his photo of the landscape take in Canyonlands National Park near Escalante, Utah, Wolfe recommends setting the camera to manual and using center-weighted metering. Then spot-read on the brightest part in the scene. "By doing that," he explains, you "allow the rain clouds to go dark. This heightens the drama between the light and the dark areas."

His 1/25 sec exposure necessitated a tripod, but you might be able to get away without one. "I've historically used



**LAKE
NAKURU,
KENYA**

This herd was captured on Fujichrome Velvia 50 film with a Canon EOS-1N RS and 600mm f/4L IS II Canon EF telephoto. Exposure was 1/30 sec at f/8.

tripods almost all the time," he says. "But times have changed—and ISOs have gotten so good that whenever I can get away from using them, I do. But I still pack them because I work around the margins of the day a lot. Without a tripod, you limit yourself."

Shoot in a Downpour

Wolfe captured a herd of impala in the Lake Nakuru Region, Kenya, from inside a rented vehicle, using a 600mm telephoto lens. "It was absolutely a downpour," he recalls. But he didn't let that stop him from shooting. In this case, the photographer stayed inside his Land Rover and chose his vantage point carefully.





If you're photographing from a car in rain, he recommends parking it at an angle that will prevent the storm from blowing into the open window and damaging your equipment. It also helps to know the behaviors of your subjects. "The rain was so heavy," he says, "that the animals stopped and stood facing away from it. The impala just stopped moving, because in that type of rain, they assume that the rain-storm will be over in 20 minutes. It's not worth moving during that time into uncertain territory when they have marginal visibility. There could be lions waiting for them. They just waited out the rain, and I was able to position myself and get that shot."

Show the Spectrum

"Rainbows are easy stuff," Wolfe says of his image made outside of Anchorage, Alaska. "They're predictable. When the sun dips low to the horizon late in the afternoon and you have a combination of rain and sunlight, you can anticipate a rainbow. In this case, flying in a small plane, I didn't predict it; I reacted to it."

Wolfe suggests making a spot reading off the rainbow, using the camera's center-weighted meter setting. "On most cameras," he explains, "you can either take a spot reading, center-weighted, or use the average matrix. I usually take the center-weighted exposure when I want to avoid washing out the rainbow."

MOUNT RAINIER, WASHING- TON

This close-up above was made with a Canon EOS-1Ds Mark III and 100mm f/2.8 Canon EF macro lens, at f/32 for 1/2 sec, ISO 250.

He also recommends using a circular polarizing filter, but warns that it can eliminate the rainbow if you're not careful. The trick, he says, is to study what's happening with the viewfinder and turn the polarizer to bring out a little more snap and contrast in the scene. This method works best when the camera is at a slight angle to the rainbow.

Get a Close-up

Wolfe's study of water droplets on lupine leaves in Washington's Mount Rainier National Park was made with a 100mm macro lens. "For this kind of intimate close-up," he advises, "get the [sensor or film] plane parallel to your subject



to achieve maximum depth of field. It adds one more element that makes the study interesting." And you don't have to stop down to f/22 to get everything in focus if you can attain it at f/11—which means a sharper, crisper image. He adds, "Here I'm definitely using a tripod, cable release, all those things that go part and parcel to shooting details of the subject."

Catch a Flash

"With lightning, there are two ways you can go about it," Wolfe says. "One way is to get a device [i.e. light-activated shutter trigger] that you attach to your camera that senses an impending strike, and it virtually opens

COLUMBIA RIVER GORGE, WASHINGTON
Wolfe shot this forest with a Mamiya 645 Pro-TL and AF 45mm f/2.8 Mamiya 645 lens, at f/12 for 1/2 sec on Fujichrome Velvia 50 film.

the camera up so you catch the lightning. I've never used it," he adds with a chuckle, "but I've heard it's pretty effective. I do it the old-fashioned way: guesswork."

For the photo shown here, taken in Guadalupe Mountains National Park in Texas, Wolfe explains, "The lightning storm was at dusk; there was some ambient light so you could see the landscape, and I could obtain a 10-second exposure. In those 10 seconds, if you're lucky, the strike happens. And if you're not, you just trigger another exposure—it's like casting a net to catch fish." Getting a great lightning shot often

requires patience and taking many long exposures. Aim to capture lighting at night, Wolfe recommends, "so you can leave the exposure open for minutes at a time. Use a wide-open aperture such as f/2.8, and a cable release, with the camera pre-focused. If it gets totally dark, just focus on infinity. It's pretty easy—but you also have to get lucky."

Record a Sun Shower

Wolfe captured the shot of maples in Washington's Columbia River Gorge using a medium-format camera and 45mm wide-angle lens (28mm equivalent). "This was a spring shower that came up quickly, but the sun was still out," he recalls. "There was probably an amazing rainbow nearby."

Despite the rain, he had good light. "When it's a downpour but the sun's out, you've got a faster shutter speed to work with—here it was 1/2 second, with a wide aperture of f/2.8. There's enough light that it creates the illusion that it's a longer exposure. The rain was so heavy that you can shoot fairly fast but still see the streaks of water. Once again: Dramatic weather makes for nice pictures."

GUADALUPE MOUNTAINS, TEXAS
Wolfe captured lightning using Canon EOS-1N and 70-200mm f/2.8L Canon EF lens; f/8.2 at 10 sec; on Fujichrome Velvia 50 film.

Do the Basics Better



As photographers, we know our stuff pretty well. We set up, check the light, focus, and fire. These are the essential tasks of photography, and most of them come as second nature. But even the most seasoned of pros have room for refinement. Here are 23 tips, tricks, and hacks that will have you shooting better than ever before.

By *The Editors*

RODNEY LOUGH JR.

SPLIT ND FILTER
Nature pro Rodney Lough Jr. captured this image using a graduated neutral-density filter to darken only the sky and balance exposure overall.

EXPOSURE

Use a Split ND Filter

"Use a graduated ND when shooting a bright sky above a landscape in shadow. The filter reduces the brightness in the sky, balancing the overall exposure," says pro Ian Plant.

Choose the correct filter strength (1-, 2-, or 3-stop) depending on how drastic the difference is between the brightness of the sky and land. "It takes a while to get used to pulling the filter down over the sky portion of the image. Beginners often pull it too far down, or not far enough. Your goal is to achieve a natural transition between sky and land," Plant says.

Landscape pro Rodney Lough Jr. layers filters. He says, "I sometimes use two to deal with over/underexposure situations like a sky reflecting in a pond, the sky itself, and darker mid-frame tree line between pond and sky."

**SETUP**

SET A STABLE TRIPOD

For the fast setup, hold the contracted tripod head down, release all the leg locks, and then flip it upright, allowing the sections to drop. When flipping, rotate the 'pod by its center column so it will spin easily. Re-tighten. Once it's down, aim it by pointing one of its legs toward your subject, then pull the other two legs back toward you to fully open it. This gets you closer to the camera for viewing. Mount the camera only after the tripod is in place. Because you will often use a tripod-mounted camera at eye level, mark the lowest leg sections: Make one set of marks that will put the camera at your eye level when shooting horizontals and another set for shooting verticals.

TRIPOD TIPS Pratt Institute Sophomore Photo major Ji Yeon Yu demonstrates the proper steps to setting up and aiming a tripod; add the camera only after you stabilize the legs!

SETUP

GROUND THAT 'POD

For long exposures on windy days or on rough terrain, you can make your tripod even more stable by hanging a weight from it. Some have a hook at the bottom of the center column; others allow for one on the shoulder of the tripod where the legs attach. While you can buy special holders that can be filled with water, sand, or rocks for weight, you can also try hanging that heavy thing you've been lugging around: your camera bag.

Do Macro Right

While it's tempting to focus a macro lens as you would any other lens, that won't get you the magnification that is the real magic of macro photography. When you want life-sized 1:1 magnification, use a focusing rail. With your camera (or lens if it has a tripod collar) mounted on the rail, you can leave the lens at 1:1 magnification and use the rail's precise gears to move the rig. Set your camera to Live View mode, in which the zoomed-in focusing assist makes the process easier and more accurate than using an optical finder.

EXPOSURE

USE YOUR CAMERA'S BUILT-IN METER

Your camera contains a powerful and inspiring exposure tool: its manual light meter. To reap its benefits, set your camera to manual exposure mode. In the viewfinder you will see a ladder-like scale with an index point indicating how under- or over-exposed the current settings are—the same one you'd use for exposure compensation in any other mode. (Is it blinking? You're probably way over- or underexposed. Briefly switch to program to get a starting exposure.) This index mark is crucial, especially with dark or light subjects. If your subject is dark (and you want to keep it dark), adjust your aperture or shutter speed settings to move the mark below the median point; if light, place it above.

FOCUS

NAIL MANUAL FOCUS

First, magnify if you can, whether by using Live View on your camera's LCD or in an electronic viewfinder. Slowly turn your lens barrel to bring your subject into focus, and keep going. Once you've overturned it, you'll see where focus falls off, and you can slowly dial it back to super sharp.

SETUP

CURE CAMERA SHAKE

During long exposures, how do you keep your tripod rock-steady? Don't use the center column, says nature shooter Rodney Lough Jr. "The higher that thing goes up, the more camera movement will reverberate down that shaft." When shooting, fire remotely. Newer cameras may have smartphone apps to allow for remote triggering. You can also use a cable release or just use the automatic timer. Says pro Ian Plant, "I'll use my camera's 2- or 10-second timer, which gives the camera a chance to settle down after you trigger the shutter with your finger."

LIGHTING

SHINE A REFLECTOR

This simple tool is often the secret to a great portrait, particularly in harsh overhead sunlight. First pick which color reflector you want to use: Shiny surfaces such as silver or gold reflect a harder, more lively light and can affect the color balance of the image. A less reflective white surface creates a softer, more neutral fill. Position the reflector close to your subject for maximum efficiency, and keep it at a low angle to fill in shadows without shining a laser beam of light directly into your subject's eyes.

LIGHTING

USE YOUR FLASH OFF-CAMERA

Taking your hotshoe flash off the top of your camera can have a huge benefit for your photos, and it's simpler than you think. Many shoe-mount flashes for DSLRs today have off-camera capability built in. They're wireless, TTL-controlled, relatively easy to use, and require no additional expense. No wireless? Use a sync cord.



MACRO FOCUSING RAIL

Patrick Mead,
a sophomore
Photo major,
uses live view
and a macro
focusing rail to
focus on the
jacks.



THREE-LIGHT PORTRAIT

This classically lit portrait of sophomore Photo major Claudia Di Maiowas was made with a simple setup using hotshoe flashes.



Classic Portrait Setup

Before you go reaching for all those fancy lighting modifiers, make sure you have this time-tested lighting technique in your toolbox. And once you master it, it's easy to modify. Here's how to set up a classic three-light portrait. You can even do it with remote-triggered hot-shoe flashes.

Start with your strongest light, or key light. Place it 30 to 45 degrees to one side of the camera and slightly above, keeping it close to the subject. As a bonus, try using a slightly more focused light source such as a beauty dish for more defined shadows.

Set up your fill light next. Place this light on the other side of your subject, and set it to 1 to 2 stops less power. This will add fill without killing the shadows and thereby making the light flat. Try using a softer modifier such as a translucent umbrella for more diffuse fill.

Finally, add a hair light. To help separate your subject from the backdrop, place your hair light 180 degrees from the key light and adjust the angle and height to match the hairstyle. Start it set to 1/8 power and tweak if necessary.

FEAR NOT THE BUILT-IN FLASH

The harsh light cast by pop-up flashes should be your last resort as a main light. But that doesn't mean you should shun the pop-up. Its true talent is operating as a fill light that opens up shadows cast by a stronger main light like the sun. Dial down its output with your camera's flash compensation setting so its effect is barely noticeable in the picture. Start with a half-stop reduction; if that's not enough, bracket down to -2 full stops—one of these shots should do the trick. Pop-ups can also serve as triggers for optical slaves in off-camera strobes—in this role, dial down output as far as it will go.

TRY A HANDHELD METER

There's a reason accessory light meters endure: They deliver consistent and accurate exposures in all kinds of light. The best handhelds offer four metering options: reflective, incident, flash, and 1-degree spot readings. The trick is picking the right mode for the scene. Is the lighting really contrasty? Set the meter for spot and aim the tiny spot in the meter's viewfinder at a part of the scene that you want rendered as a medium tone. If your subject is dominated by dark or light tones, use the incident mode by placing the meter in the scene at the point of critical exposure to take your reading. In most other scenarios the meter's reflective mode, which you use by pointing the meter at the scene, should deliver the goods.

WORK YOUR AUTOFOCUS

Too many photographers use only the center AF point: They put the subject in the center of the frame, press the shutter halfway, and recompose the shot. But if you're using a very big aperture, your subject will not remain in focus. Why? The distance to your subject won't be the same distance you focused to. Instead, select your AF point (your camera's manual will tell you how) to use the one that is over the exact spot in the frame that you want to be the sharpest.

FOCUS



Get Amazing Bokeh

Great bokeh, explains nature pro Eric Plante, will “separate the subject from the background, keeping the viewer’s eye on the intended subject.” How to get that beautifully defocused background? Start with a lens that allows a large aperture such as f/2.8 or f/1.4. From there, he says, “the key is to have some distance between the subject and the background.” If you can’t place your subject farther from the background, decrease the distance between the camera and the subject: “The further the background, the more out-of-focus it will be. Highlights hitting the background, such as the sun, will show even more visible bokeh, too.”



LIGHTING

BACKLIGHT RIGHT

As far as we're concerned, you should be using a lenshood as often as possible. But when you're shooting into a strong backlight it becomes even more essential. As light hits the edges of your front lens element, it can cause all kinds of photographic phenomena from lens flare to image ghosting. And while flare can sometimes look cool, it can also ruin a great shot by totally wiping out contrast and detail. So add a hood to the front of your lens to restrict the incoming light to a much more direct path through the elements and to the sensor. If you don't have a hood, some gaffer's tape and a piece of cardstock can do the trick. Just don't let it stick out too far or it will show up in the edges of your photo.

EXPOSURE

CALCULATE EXPOSURE FOR AN ND FILTER

By cutting the light that hits your sensor, neutral-density filters let you blur the motion of a moving subject when the scene is too bright for a slow shutter speed. For exposure times under 30 seconds, shooter Richard Bernabe says that the camera's TTL metering will calculate exposure correctly. To figure out the time for longer exposures, increase your ISO in increments of 1 stop while keeping the exposure time at 30 seconds. Once the meter indicates the right exposure, dial back to the original ISO and add back the correct number of stops to the 30-second exposure time.

LOVELY BLUR Ian Plant got this beautiful defocused background using a 200mm-400mm lens racked all the way out to 400mm.

LIGHTING

USE GELS TO FIX MIXED LIGHT

Our brain can make many kinds of light appear "white," but your camera doesn't lie. Candles? They're orange. Fluorescents? They're all over the map. Add in light from your flash and you get a sickly mix of color temperatures. The solution is a simple gel, which come in a variety of translucent colors to make the light from your flash match the ambient light around it. The most common is called a CTO (Color Temperature Orange) designed to help your flash mimic the familiar warm glow of an incandescent light bulb. CTB (Color Temperature Blue) gels go the other way and will make an incandescent bulb look more like your flash or even like sunlight.

EXPOSURE

KNOW WHEN TO USE A POLARIZER

Threaded on the front of a lens, a polarizing filter can boost color saturation in blue skies and in vegetation or eliminate reflections in glass. Unless you're thinking about it, though, it's not always obvious which subjects would benefit from the filter. For a leg up, don polarizing sunglasses to cue you to scenes or subjects that could be captured with more impact by threading on that filter. And when you're not using it, put it away—a polarizer is not a neutral lens shield.

SETUP

HANDHOLD LIKE A SHARPSHOOTER

No tripod? For sharpness at slower shutter speeds, stand with your feet shoulder-width apart, your left foot a little in front of your right, and your knees slightly bent. Hold your camera with your left hand under the lens, elbows against your body but not pressed in hard, and the camera against your face, eye to the viewfinder. Relax your shoulders. Breathe in, exhale halfway, and gently press the shutter button.

FOCUS

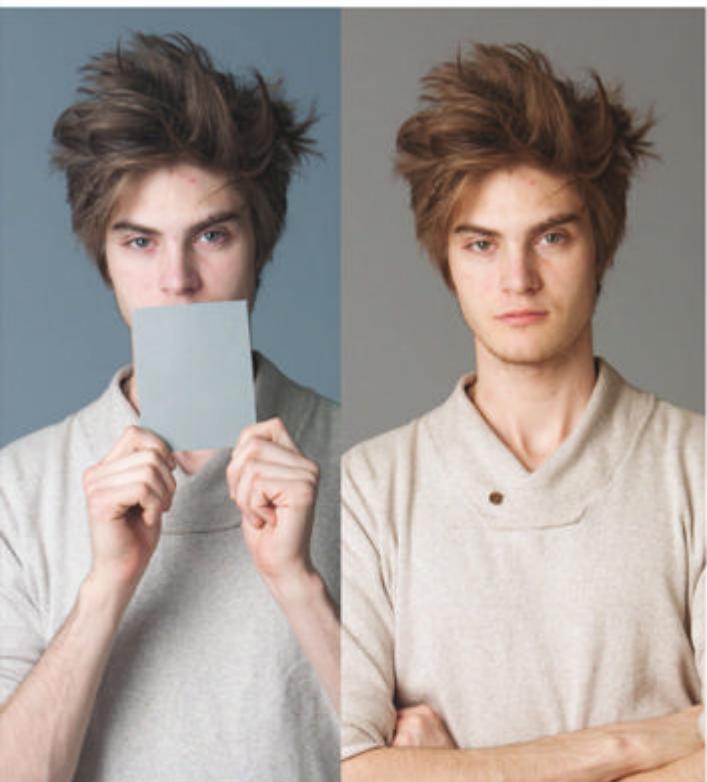
RACK FOCUS IN VIDEO

Rack focusing, also known as pulling focus, refers to changing your point of focus while shooting video. It's a cool, beautiful effect, and worth practicing. If you are shooting with a lens that has autofocus, switch it to manual mode to have precise control over what is in focus in the frame. Hit record. From there, the trick is to rotate the focusing ring at a steady pace (much easier if you are mounted on a tripod) to change focus back and forth from people or objects located in the foreground and background. To really see the effect, keep your aperture wide open—at least f/4.

EXPOSURE

Use a Gray Card

This is your \$3 ticket to neutral color and dead-on exposure—carry one with you to set your camera right at the start or make easy corrections later, and be sure to use it in situations with mixed lighting. Have your subject hold it near the part of the face that you'll want to be correct (or place it in the scene if you're shooting a landscape or still life), and set your exposure accordingly. Then take it out of the shot and continue shooting. If the light changes, take another shot with the card in it. In processing, use a gray dropper on the gray card to make a one-click fix and neutralize your image. Then apply the same white balance corrections to all the images shot in the same light. Adobe Photoshop Lightroom makes this simple: Make a gray-dropper correction, select the images you want to apply it to, and click sync.



STAN HORACZEK (2)

Our studio was Pratt Institute's Department of Photography on the Brooklyn campus, and our models and interns-for-the-day were Studio Lighting 1 students. For more on the shoot, see Editor's Letter on page 8. And for how-to video, visit PopPhoto.com/HowTo2015.

WHITE BALANCED Sophomore Photo major Mo Bone holds a gray card. Click on it for a quick white balance fix, then carry that fix over to photos shot in the same light.

SETUP

OPERATE OPTICAL IMAGE STABILIZATION

You'll find what you need to know most about using your IS in the instructions that came with your gear. Some lenses have a single mode, others have more than one—your manual will tell you what to use when, and whether your IS will work when your camera is on a tripod. What the manual won't say you need? Patience. Press the shutter button halfway down—for about 1 second. Wait until you see the image stabilize in the viewfinder, then take press the shutter. If you fire too fast, you won't get the effect.

EXPOSURE

SHOOT PERFECT WHITE BALANCE

To capture the most accurate color balance for a given lighting scenario, customize it. When selecting WB in the camera, choose Custom. Your camera will prompt you to shoot an image of your gray card. The process varies from brand to brand, so consult your manual. Sometimes you must fill the frame; sometimes you can select the grey card from within a shot. Once programmed, you'll get the best color accuracy possible. Just don't forget to make a new custom balance when the light changes.

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BEHIND THE SCENE

How one retoucher used
four images to create a
single great photograph

by Debbie Grossman



PROFESSIONAL RETOUCHER

Taisya Kuzmenko is a master of image transformation. She works her magic at Picturebox Creative (pictureboxcreative.com), an imaging studio in Philadelphia that offers retouching and compositing services to photographers, magazines, and ad agencies around the world.

Brian Schneider (ebrianschneider.com), a Baltimore-based photogra-

pher, contacted the studio for help to perfect images he shot for a university client. He had hoped to take this picture at sunrise but, due to schedule changes, ended up shooting at two in the afternoon. Schneider wanted to transform the shot to match his original concept: A monumentally photographed athlete on top of the world—at dawn. Here's how Kuzmenko made that happen.

1 Light and Color

Kuzmenko has a background in painting, so she carries a library of colors in her head. Of the palette for this image, she says she "was thinking of a early sunrise on a summer day, before the sun is up, the clouds start having pretty hues and the blues become rich." Once she envisions the color, she begins to assemble the picture. For this image, she did the initial toning of the elements Schneider shot using Adobe Camera Raw via Adobe Bridge.



2 Figure and frame

When Kuzmenko is working on an image, she wants to make sure it can have as long and diverse a life as possible, which often means leaving space to crop and room for text. So she shrunk the figure of the athlete in relation to the column and moved her toward its outer edge. Doing so yielded more space on the right, made the column more monumental, and made the athlete's position seem more daring.

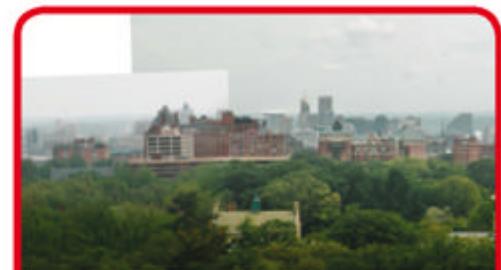
3 The shadow

The original shot was lit from the right—that's where the roof was and where Schneider set up his gear. But because the revised light surrounds the athlete, and since she is standing close to the column, her body would cast a shadow. To make it, Kuzmenko used her knowledge of anatomy along with many layers and masks set to different blend modes.



4 A new column

Schneider had captured a different athlete on the same column, only he had left more of the column in the picture. Kuzmenko removed the other athlete and filled in the gap, fixed the column's perspective so it appeared straight, and then retouched the column slightly. Finally, she added the field hockey player.



5 Piecing together the view

Because of the widened format of the final image, Kuzmenko needed to patch in a bit of skyline from another image to fill out the bottom left side. She also selectively sharpened and blurred foreground and background elements to establish the appropriate depth of field.

6 Buying a sky

Kuzmenko and Schneider tried on a few stock sky images before picking this one. Though she wasn't able to get a RAW file of the sky, she still used ACR's tools to tone it.

For much more on how this image was made, plus examples of Taisya Kuzmenko's work, visit PopPhoto.com/kuzmenko.

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AUTHORITATIVE TESTS, REVIEWS, AND BUYING ADVICE

DSLR TEST

SMALL LEAP FORWARD

Nikon raises the bar for entry-level

EVERY CAMERA maker has its own way of breaking its lineup into categories such as entry-level, enthusiast, and professional. But these generalizations can conceal a lot of fine distinctions that seem

rather mysterious from the outside. What, for instance, is a step-up camera? Usually it's a fancier entry-level model that includes performance upgrades and a couple of appealing features not

included in the basic model at the bottom of the lineup.

In Nikon's case, make that one big feature: the tilting and swiveling LCD display that is

Nikon D5500

**24.2MP
APS-C-Size
CMOS sensor
3.2-inch
1,037,000-dot
touchscreen
5-fps bursts
Video up to
1920x1080p60
\$797, street,
body only**



TAMRON'S 25-30MM F/2.8 VC; PENTAX'S 20-40MM F/2.8-4 LIMITED

73



74





SHOWN WITHOUT LENS

becoming ubiquitous on consumer cameras. On the new D5500, the \$797 (street) step-up from the more basic D3300 and its predecessors with fixed LCDs, the articulating display is now a handy touchscreen.

This petite 24.2MP APS-C-format DSLR represents a rather small improvement from its own predecessor, the D5300. While its top sensitivity remains ISO 25,600, in the D5500 it's part of the standard range, while it was labeled as Hi-1 in the D5300. The new body also gets a built-in intervalometer for time-lapse shooting, Nikon's Vignette control feature to combat light falloff, and a bigger buffer to allow for up to ten 14-bit RAW files—and it maintains the full burst speed of 5 frames per second when capturing those large RAW files (the D5300 slows to 4 fps with 14-bit RAWs). Plus, as in the D5300, there's built-in Wi-Fi.

But how does this new camera measure up in the Popular Photography Test Lab and on the streets (and subways) of New York?

In the Test Lab

Combining powerful noise control and plenty of resolving power, the D5500 earned an Excellent overall image quality rating from its lowest sensitivity of ISO 100 all the way through ISO 6400. For a body that is deemed entry-level by its maker, that's quite a feat. The D5300, tested in our February 2014 issue, held onto this rating only through ISO 1600.

NIKON D5500

WHAT'S HOT

Excellent image quality, small size

WHAT'S NOT

Only one command wheel

WHO IT'S FOR

Budget-minded shooters looking for a versatile body in the Nikon System

In our color accuracy test, the D5500 easily scored an Excellent rating with an average Delta E of 6.5. That puts it well below the lower-is-better (because it measures deviation) cutoff of 8 for this test.

With its big CMOS sensor, the D5500 managed to maintain Excellent-level resolution all the way up to ISO 6400. At its best, the camera delivered 2760 lines per picture height at ISO 100. By ISO 800 this had fallen less than 100 lines to 2670. At ISO 6400 it turned in 2600 lines, though past that sensitivity D5500's resolving power began to fall more precipitously. At ISO 12,800 it dipped to 2330 lines, while at the camera's top of ISO 25,600 resolution ended up at 2120 lines.

How does this compare to its most significant rivals? While we haven't gotten a test sample of Canon's new EOS Rebel T6i or T6s, compared with the T5i (which remains in Big Red's lineup) the D5500 easily wins the resolution battle—the T5i could maintain an Excellent resolution rating only at ISO 100 with 2500 lines, dropping to 1860 lines at ISO 25,600. Of course, the T5i uses an 18MP sensor, while the T6 bodies have a 24.2MP chip, the same pixel count as the Nikon. So we'll see what happens to this competition when the new Rebels show up in our lab.

When it comes to noise, the D5500 gained 2 stops over the D5300, holding a Low or better rating up to ISO 6400 compared to ISO 1600. Impressively, the new camera didn't reach an Unacceptable rating until ISO 25,600. Being able to capture images with such little noise and so much resolving power at ISO 6400 is a testament

to the innovation in digital photography. Us (ahem) older folk can remember shooting black-and-white ISO 6400 film with golf-ball-like grain and being thankful that we could get such fast shutter speeds in extremely low light. With the D5500 you can shoot in full color at ISO 12,800 and still have a grain-free file. Plus you can port a photo over to your phone and share it with thousands of people (or more) in less time than you would've spent choosing which photo lab to bring that film to. (But that's a whole other argument.)

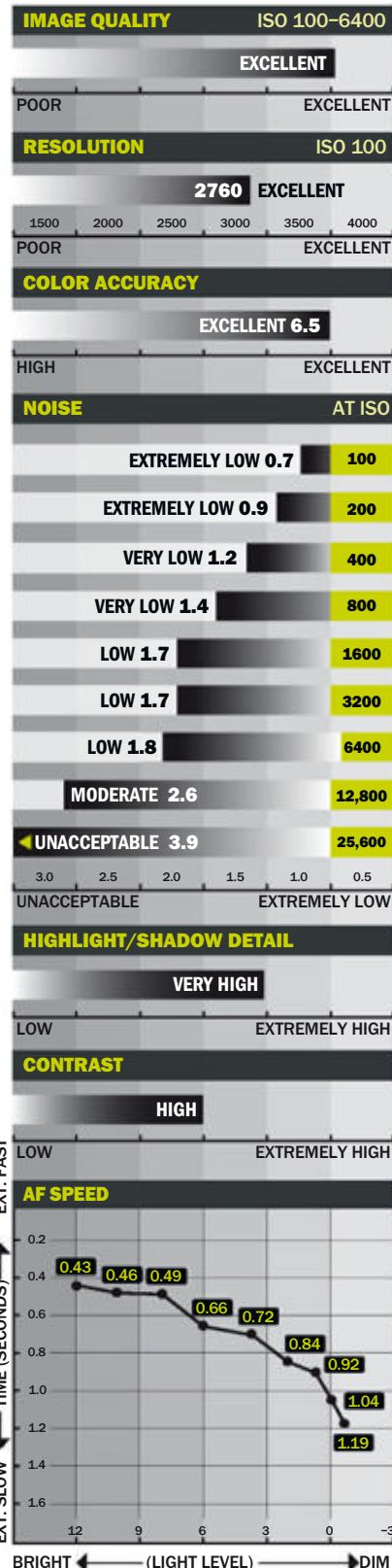
While the hardware of the autofocus system hasn't changed, the D5500 achieved slightly faster results at most of the light levels in our test. At the brightest level of EV 12, the D5500 focused and captured an image in 0.43 second. It didn't drop below the half-second mark until EV 6, where it locked focus and captured an image in 0.66 second. From there it was able to focus in less than a second until the dimness of EV 0, where it took 1.04 seconds to complete the task. While the camera is rated to focus down to EV -1, and it was able to do so with an average of 1.19 seconds, it was noticeably more erratic once we dimmed the lights below EV 0. Still, we remain impressed that Nikon was able to tune the system to improve upon the D5300's results and deliver such fast AF in the middle and darker range of this test.

In the Field

For a DSLR, the D5500 is quite small. In fact, Samsung's NX1 interchangeable-lens compact is larger than it. Still, the Nikon has a very solid grip thanks to a design that makes the most

Like all of Nikon's entry-level bodies, the D5500 has no coupling pin to allow autofocus with older Nikkor lenses—if you want AF you'll have to use a lens with a built-in focusing motor, such as Nikon's G-series lenses.

TEST RESULTS



of the area between the grip and the mirror box and lensmount. The shutter button floats above this space on a ledge, while that ledge also provides leverage to angle the camera upward. This may prove quite useful if you use large lenses that can tip the camera downward. We mounted the excellent AF-S Nikkor 58mm f/1.4G lens on the D5500, and even with this prime it gravitated downward.

As is typical for smaller, entry-level bodies, there's only one command wheel on the D5500. If you want to use exposure compensation, you'll have to hold down the exposure comp button while turning the lone wheel. Similarly, you won't find many dedicated control buttons, and some of those that remain are in strange places.

Once you learn the layout,

though, this won't be a big problem. For example, Nikon tucked the drive mode button underneath the lens release button, and you'll find a programmable function button above it. If you're holding the camera properly with two hands, you won't have any trouble accessing these controls.

We left that function button at its default setting controlling ISO. Otherwise we would have had to take our eye away from the optical finder and use the dashboard-style control panel on the LCD. While this was convenient when changing some settings, we like to have a way to change sensitivity quickly and were glad to have the function button.

As for that LCD, the articulating 3.2-inch 1,037,000-dot monitor's touch control

Entering and exiting Live View shooting is as simple as pulling back on the lever that sticks out to the right of the shooting mode dial.

should prove especially helpful when shooting video. But still shooters should try using it to set the AF point when shooting in live view (for more on this, see our "Do It Better" feature (page 54). It also provides a quick way to move through the control panel.

Video footage that we captured looked great for a camera in this price range. Videographers should also benefit from the new Flat picture control setting, which emphasizes capturing detail across a wide tonal range and assumes that contrast and color settings will be adjusted in postproduction.

Burst shooters should like the 5 fps continuous drive option. That's usually what we suggest as a minimum for sports. Plus, with the camera's



B+W
EXPOSURE

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Fine art photographer Ron Rice is based in Nashville, TN.



RON RICE ON SCHNEIDER B+W FILTERS

"There was the shot I was looking for, just outside of New Orleans on the private road to an old plantation—majestic Oaks, overgrown with Spanish moss. I set up my tripod dead center of the quiet road, reached for my Fujifilm X-E2 and chose the XF50-140mm f2.8 OIS lens. On front of the lens I chose a B+W filter because I know they will always be as good or better than any of my lenses. I mounted the B+W F-Pro Mount Circular Polarizer and dialed in the sweet spot to get just the right amount of color saturation to make the shot pop."



buffer increased to hold up to 100 JPEGs or up to 10 14-bit RAW files before slowing, the D5500 will be more useful for action than its predecessor.

While the D5500 has a menu setting for Commander Mode—Nikon's system for wirelessly controlling off-camera accessory flashes—its pop-up flash can't act as commander on its own. You'll need to mount an SB-500 (\$247, street) or higher-end flash in order to control off-board Speedlights.

The D5500's built-in Wi-Fi lets you operate the camera remotely or send images to your phone for sharing. It's very similar to what you'll find in other cameras and didn't prove any more difficult to pair the camera with the Samsung Galaxy S3 phone we tried it on.

The Bottom Line

While we remain perplexed as to why Nikon doesn't design more of its bodies to have articulating LCD screens like this one, we can say that the D5500 is a very capable camera and we're glad that the company has continued to offer a body with such a monitor.

If you're looking for a camera with an APS-C-size imager and don't want one that costs as much as the new D7200 (see page 16), you'll be well-served by the D5500. Plus, the number of lenses and accessories available for Nikon means you're entering a system that you can grow with, should you not already have a stable of F-mount glass.

All in all, the D5500 looks like a winner.

—Philip Ryan

You can learn more about how we test cameras at PopPhoto.com/reviews.

SPECIFICATIONS

IMAGING: 24.2MP effective, APS-C-sized CMOS sensor captures images at 6000x4000 pixels with 12 or 14 bits/color in RAW mode

STORAGE: SD, SDHC, SDXC. Stores JPEG, NEF RAW, RAW + JPEG

VIDEO: Up to 1920x1080p60 MPEG-4/H.264 MOV; built-in stereo mic, stereo minijack mic input; contrast detection AF and face detection in video and live-view mode; maximum clip length approximately 29 min 59 sec

BURST RATE: Full-sized JPEGs (Fine mode): 5 fps up to 100 shots; RAW (14-Bit): 5 fps up to 10 shots when using a UHS-I memory card

AF SYSTEM: TTL phase detection with 39 focus points (9 cross-type). Single-shot and continuous with 3D predictive focus tracking

SHUTTER SPEEDS: 1/4000 to 30 sec (1/3-EV increments); shutter life not rated

METERING: TTL metering using 2016-pixel RGB sensor with 3D Color Matrix (evaluative), centerweighted, and spot (approx. 2.5% of frame) metering; 0–20 EV (at ISO 100)

ISO RANGE: ISO 100–25,600 (in 1/3-EV increments)

FLASH: Built-in pop-up with TTL autofocus, GN 39 (ISO 100, feet); flash sync to 1/200 sec

VIEWFINDER: Fixed eye-level pentamirror

LCD: Articulating 3.2-in. LCD with 1,037,000-dot resolution; 11-step brightness adjustment

OUTPUT: Hi-Speed USB 2.0; mini HDMI video; Wi-Fi

BATTERY: Rechargeable EN-EL14a Li-ion, CIPA rating 820 shots

SIZE/WEIGHT: 4.9x3.9x2.8 in., 1.0 lb with card and battery

STREET PRICE: \$797, body only; \$1,097, with AF-S DX Nikkor 18–140mm f/3.5–5.6G ED VR lens

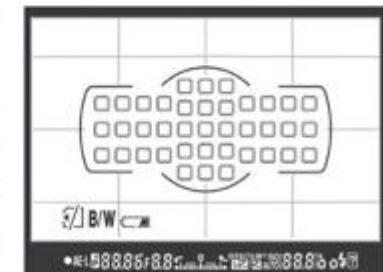
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VIEWFINDER TEST: Accuracy, 95% (Excellent); Magnification, 0.82X (Very Good).

GOOD TURN

A WIDE-ANGLE OPTION WITH STABILIZATION

TAMRON DELVES even deeper into stabilized wide-angle lenses with this full-frame 15–30mm f/2.8. Following the ground-breaking 24–70mm f/2.8 stabilized lens, the newcomer (\$1,199, street) is the world's first high-speed zoom with shake control that reaches into ultrawide focal lengths.

Other distinguishing traits: its massive size. At more than 2.5 pounds and 5.75 inches long, it has considerably more heft than Sigma's arguably comparable 18–35mm APS-C zoom—a constant f/1.8. Our Tamron is also about a half-pound heavier than the Sony Zeiss 16–35mm f/2.8 and a pound heavier than either of Canon's 16–35mm. It's an inch or so longer than all three.

Among its 13 groups, there's an XGM (Expanded Glass Molded) aspherical element placed up front and several LD elements behind it; all promise to tamp down effects such as chromatic aberration. The lens's protruding front element prevents the use of threaded filters; there's also no provision for rear-mounted acetate gels. The lens does, however, offer a fixed, reinforced lenshood (sort of like a hood within a hood) that protects the bulging and vulnerable front element from scratching.

TAMRON 15–30MM F/2.8 DI VC USD

WHAT'S HOT Fast and sharp with Great stabilization and pricing

WHAT'S NOT

Heavy, accepts no filters

WHO IT'S FOR

Almost anyone wanting a stabilized wide-to-ultrawide

In the Popular Photography Test Lab, the lens's SQF sharpness results fell in the Excellent range at all focal lengths. In our DxO Analyzer 5.3 tests of distortion control, at its sweet spot of 20mm, this lens held barrel distortion to the Imperceptible range (0.04%), a welcome performance.

Light falloff was much improved over Tamron's 24–70mm f/2.8 VC lens which, at 24mm, vignetted at all apertures. In contrast, at its widest focal length, the new Tamron showed no sign of edge falloff by f/5.6. Nice.

Tamron's Vibration Control system delivered 2.5 extra stops of handheld sharpness, beating our other comparable stabilized lens, the Canon 16–35mm f/4L, which came in at 2.33 stops.

Practically speaking, Tamron's

SPECIFICATIONS

15–30MM (15.01–29.57mm tested), f/2.8 (f/2.65–2.94 tested), 18 elements in 13 groups. Focus ring turns 120 degrees. Zoom ring turns 80 degrees. Focal length marked at 15, 18, 20, 24, and 30mm.

DIAGONAL VIEW ANGLE: 110–71 degrees

WEIGHT: 2.53 lbs **FILTER SIZE:** n.a.

MOUNTS: Canon AF, Nikon AF, Sony AF

INCLUDED: Silkypix developer

studio software

STREET PRICE: \$1,199

WEBSITE: tamron-usa.com

TEST RESULTS

DISTORTION: At 15mm, 0.55% (Visible) barrel; at 20mm, 0.04% (Imperceptible) barrel; at 30mm, 0.24% (Slight) pincushion

LIGHT FALLOFF: At 15mm, f/5.6; at 20mm, f/4; at 30mm, f/3.5

CLOSE-FOCUSING

DISTANCE: 10.33 inches

MAXIMUM MAGNIFICATION RATIO:

At 15mm, 1:7.26; at 20mm, 1:5.72; at 30mm, 1:4.32

IMAGE STABILIZATION: 2.50 stops

AMATEUR

3.88 in.



This massive lens's Vibration Control system gave us acceptable handheld images at shutter speeds as slow as a full second.

15–30mm is a steal: almost half the price of the Sony Zeiss 16–35mm f/2.8 and about \$500 less than the Canon 16–35mm f/2.8 and Nikon 14–24mm f/2.8G. None of these offer stabilization. Who can resist?

—Julia Silber

SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

Size	5x7	8x10	11x14	16x20	20x24
2.8	96.8	95.8	93.4	88.8	83.3
4.0	96.8	95.8	93.5	89.0	83.6
5.6	96.9	95.9	93.7	89.4	84.3
8.0	96.8	95.9	93.6	89.3	84.1
11.0	96.6	95.6	93.1	88.5	82.9
16.0	96.1	94.8	92.0	86.4	79.7
22.0	95.0	93.5	89.8	82.0	72.4

Size	5x7	8x10	11x14	16x20	20x24
2.8	96.5	95.4	92.8	87.7	81.5
4.0	96.7	95.7	93.4	88.7	83.1
5.6	97.0	96.1	93.9	89.7	84.7
8.0	97.0	96.1	93.9	89.8	85.0
11.0	96.7	95.7	93.4	89.0	83.6
16.0	96.2	95.0	92.3	86.9	80.5
22.0	95.1	93.6	90.0	82.5	73.0

Size	5x7	8x10	11x14	16x20	20x24
2.8	95.7	95.7	93.3	88.8	83.4
4.0	96.7	95.7	93.3	88.7	83.2
5.6	96.9	95.9	93.6	89.5	84.6
8.0	96.3	95.2	92.5	87.2	80.8
11.0	96.3	95.2	92.5	87.4	81.1
16.0	96.1	94.9	92.0	86.4	79.5
22.0	95.2	93.8	90.2	83.0	74.1

KEY

NO LIMITS

UNLIMITED POTENTIAL IN A LIMITED-SERIES PENTAX

AS ITS LONG name suggests, the HD Pentax DA 20–40mm f/2.8–4 ED Limited DC WR has loads of special features. The HD, for example, refers to a new multi-layer High Definition coating. According to Pentax, it offers improved control over reflections, flare, and ghosting. This \$747 (street) lens is also the first zoom in Pentax's heralded Limited line and the first such lens with a DC (Direct Current) focusing motor. A full-frame equivalent of a 30.5–61.5mm zoom, this is also the first lens in the series with above-average weather sealing, thanks to seven additional seals for repelling dust and moisture.

Pentax Limited lenses are luxurious in appearance as well as quality, and living up to the name, the 20–40mm f/2.8–4 zoom is one of the most beautiful instruments ever mounted on our optical bench. Its barrel, lenshood, and cap are all of machined aluminum, imparting a classic look and feel. And it's available in a handsome matte black or matte chrome finish. The inside surface of its lens cap is distinguished by a swath of posh velvet flocking.

A series of finger-friendly

knurled grooves reminiscent of the early Pentax Takumar lenses—a Pentax fan favorite—enable easy gripping of the zoom ring. The DC focusing motor makes for quick and quiet autofocus.

Our SQF tests on the Popular Photography Test Lab optical bench found Excellent-range levels of sharpness and contrast at all focal lengths, and our DxO Analyzer 5.3 tests showed Imperceptible barrel distortion (0.07%) at 40mm, a killer result. In comparison, Sigma's 18–35mm f/1.8 showed Slight-range pincushion distortion (0.17%) at its longest focal length.

Aside from the remarkable cosmetics, the Pentax is notable for its physical traits. Compact at just 2.68 inches (contracted), the Pentax is a pound lighter and two inches shorter than the comparable Sigma lens. Nevertheless,

SPECIFICATIONS

20–40MM (20.64–39.45mm tested), f/2.8–4 (f/2.76–3.97 tested), 9 elements in 8 groups. Focus ring turns 80 degrees. Zoom ring turns 70 degrees. Focal length marked at 20, 25, 30, 35, and 40mm.

DIAGONAL VIEW ANGLE: 70–39 degrees

WEIGHT: 1.08 lb **FILTER SIZE:** 55mm

MOUNTS: Pentax AF

INCLUDED: Lenshood, lens pouch

STREET PRICE: \$747

WEBSITE: us.ricoh-imaging.com

TEST RESULTS

DISTORTION: At 20mm, 0.41% (Visible) barrel; at 30mm, 0.15% (Slight) barrel; at 40mm, 0.07% (Imperceptible) barrel

LIGHT FALLOFF: At 20mm, gone by f/4; at 30mm, f/4; at 40mm, f/5

CLOSE-FOCUSING DISTANCE: 10.37 inches

MAXIMUM MAGNIFICATION RATIO:

At 20mm, 1:7.95; at 30mm, 1:5.59; at 40mm, 1:4.30



This first zoom in Pentax's Limited line covers the focal lengths of three popular full-frame equivalents: 30mm, 50mm, and 60mm.

the Pentax is long enough to cast a shadow at its widest focal lengths and close-focusing distances when used with the pop-up flash on our Pentax K3 test body.

The Pentax's more petite length and weight should make it much easier to take along than the significantly faster Sigma. (And yes, the Sigma is available in a Pentax mount.) To sweeten the deal, the Pentax Limited zoom costs about \$50 less.

—Julia Silber

SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

Size	5x7	8x10	11x14	16x20	20x24
2.8	96.1	94.9	92.0	86.1	78.8
4.0	96.1	94.9	91.9	86.0	78.6
5.6	96.1	94.9	92.0	86.2	79.0
8.0	96.4	95.3	92.7	87.5	81.2
11.0	96.4	95.3	92.6	87.5	81.1
16.0	96.2	95.1	92.4	87.0	80.4
22.0	95.8	94.5	91.4	85.3	77.8

Size	5x7	8x10	11x14	16x20	20x24
3.5	98.6	95.5	93.1	88.4	82.9
5.6	98.6	95.6	93.1	88.5	83.0
8.0	98.7	95.7	93.3	88.9	83.6
11.0	98.6	95.5	93.0	88.3	82.7
16.0	98.3	95.1	92.5	87.3	81.1
22.0	95.7	94.3	91.2	84.9	77.2
29.0	95.4	94.0	90.5	83.7	75.1

Size	5x7	8x10	11x14	16x20	20x24
4.0	98.7	95.7	93.2	88.6	83.0
5.6	98.6	95.6	93.1	88.3	82.6
8.0	98.7	95.7	93.3	88.8	83.3
11.0	98.6	95.5	93.0	88.3	82.5
16.0	98.4	95.3	92.7	87.7	81.6
22.0	95.9	94.7	91.7	85.9	78.8
32.0	95.1	93.6	89.9	82.2	72.6

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MAY, 1955
35 CENTS



Original Supermodels

After six months of trying, photographer George Barris was able to get four of New York's best-paid models in one place—his studio. Our editors considered the event important enough to warrant a full-page feature. Barris used a 4x5 Speed Graphic with a 5 1/4-inch f/4.5 Ektar lens and Type B Ektachrome film with a 1-sec exposure at f/4.5. He softened the light from his

60
YEARS
AGO

We ran
an article
asking "How
Important is
the Pulitzer
Prize?"

500-watt flood lamps by bouncing them off the wall.

Hope Springs Eternal

Despite the growing popularity of focal-plane 35mm SLRs, German manufacturers



insisted on making leaf-shutter models. A prime example was this beautifully made Contaflex II featuring a built-in exposure meter plus a very good f/2.8 lens. A product of Carl Zeiss, the Contaflex II was priced a \$ 199.



Amateur But No Tyro

June Duckworth, a bass violist in the New York City Ballet orchestra, was profiled in a two-page spread under the heading "Pictures from a reader." She always carried her camera, a screw-mount Leica, to capture odd moments. Her photo of ballet dancer Diane Dear in her dressing room typifies her style and perfectly encapsulates the atmosphere of a theatrical dressing room.

Blockbuster Photo Show

Among the most famous exhibitions was *The Family of Man*, mounted at New York's Museum of Modern Art under the direction of Edward Steichen. The 500-odd photos were mounted with skill and imagination to provide a total viewing experience. The picture here was taken by Lionel Freedman for this major nine-page feature.

—Harold Martin



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with 18-55mm Lens #FUXT11855B



16 Mega Pixels

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Body Only #FUXE2*
with 18-55mm Lens #FUXE21855*



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- Full HD 1080p Video Recording at 60 fps
- Available in Black, Orange, Silver or White

with 10-30mm Lens #NI1J41030*



18 Mega Pixels

Nikon 1 V3 Mirrorless System Camera

- EXPEED 4A Image Processor • Built-In Wi-Fi
- microSD, microSDHC, microSDXC Card Slot
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- Movie e-VR Stabilization • Hybrid AF System
- 20 fps Shooting with Full-Time AF • ISO 12800
- Full HD 1080p Video Recording at 60 fps

with 10-30mm Lens #NI1V31030



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Nikon

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16 Mega Pixels

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Body Only (Black or Silver) #OLEMDEM5*



16 Mega Pixels

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Rebates Expire 3-28-15



D5500 18-55 Kit is available in Black or Red

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- EXPEED 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi Connectivity
- Full HD 1080p Video Recording at 60 fps
- Nikon Inc. limited warranty included



24 Mega Pixels

Rebates Expire 3-28-15

Price Rebate Final Cost

Body Only #NID750 2,296.95 —

Kit with 24-120mm VR #NID75024120 3,596.95 \$600 2,996.95

D610 Body Only #NID610 1,996.95 \$500 1,496.95

D610 Kit with 24-85mm VR II #NID6102485 2,596.95 \$600 1,996.95



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Nikon D810 DSLR

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- EXPEED 4 Image Processor
- Optical Low-Pass Filter • 3.2" LCD
- CF & SD Dual Card Slots
- Nikon F Mount Lens Mount
- Full HD 1080p Video at 60/30/24 fps
- External Mic and Headphone Inputs
- Continuous Shooting to 5 fps in FX Mode
- Nikon Inc. limited warranty included



36 Mega Pixels

Rebates Expire 3-28-15

Price Rebate Final Cost

Body Only #NID810 3,296.95 \$300 2,996.95

Kit with 24-120mm VR #NID81024120 4,599.95 \$900 3,699.95

Nikon D4s DSLR

- FX-format (full-frame) CMOS Sensor
- 14-Bit RAW Files & 12-Bit RAW S Format
- Full HD 1080p Video at 60 fps
- EXPEED 4 Image Processor
- Compatible with Most Nikkor Optics
- 11 fps Shooting for 200 Shots with AE/AF
- ISO 50-409600 • 3.2" LCD
- CF Type 1 & XQD Compatible
- 1000 Base-T Gigabit Wired LAN Support
- Nikon Inc. limited warranty included



16 Mega Pixels

Rebates Expire 3-28-15

Price Rebate Final Cost

Body Only #NID4S 6,496.95 \$500 5,996.95

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212-444-6666

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212-239-7770

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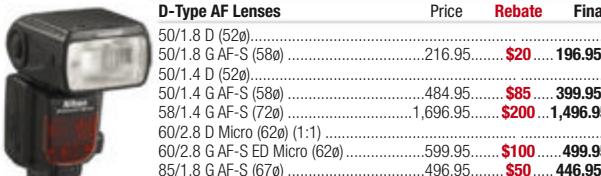
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May 24-25	Closed	

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AF Flashes	Price	Rebate	Final
SB-300	146.95		
SB-500	246.95		
SB-700	326.95		
SB-910	546.95		
R1 Wireless Twin Flash			
R1C1 Wireless Twin Flash System			



D-Type AF Lenses

Price Rebate Final

50/1.8 D (52o) 50/1.8 G AF-S (58o) 216.95 \$20 196.95*

50/1.4 D (52o) 50/1.4 G AF-S (58o) 484.95 \$85 399.95*

58/1.4 G AF-S (72o) 1,696.95 \$200 1,496.95

60/2.8 D Micro (62o) (1:1) 60/2.8 G AF-S ED Micro (62o) 599.95 \$100 499.95

85/1.8 G AF-S (67o) 496.95 \$50 446.95*

85/1.4 D AF-S (77o) 1,699.95 \$200 1,499.95*

85/2.8 PC-E Micro (77o) 105/2.8 G AF-S ED-IF VR Micro (62o) 984.95 \$185 799.95*

105/2.0 DC D with Hood (72o) 180/2.8 D ED-IF (72o) 1,025.95 \$100 925.95*

200/4 D ED-IF Micro with Case (62o) 200/2 G AF-S ED-IF VR II (52o) 1,025.95 \$100 925.95*

300/4.0 D AF-S ED-IF (77o) 300/2.8 G AF-S VR (52o-R) 1,025.95 \$100 925.95*

500/4.0 G AF-S VR ED (52o) 600/4.0 G AF-S VR ED (52o) 1,025.95 \$100 925.95*

14-24/2.8 G AF-S ED-IF 14-24/2.8 G AF-S ED-IF 1,996.95 \$200 1,796.95*

16-35/4.0 G AF-S ED VR (77o) 1,256.95 \$260 996.95*

17-35/2.8 D AF-S ED-IF (77o) 18-35/3.5-4.5 AF-S G ED (77o) 746.95 \$100 646.95

24-70/2.8 G AF-S ED-IF (77o) 1,886.95 \$200 1,686.95*

24-85/2.8-4.0 D (72o) 24-85/3.5-4.5 G AF-S ED VR 596.95 \$100 496.95

24-120/4.0 G AF-S ED VR (77o) 1,296.95 \$100 1,096.95*

28-300/3.5-5.6 G AF-S ED VR 1,046.95 \$250 796.95*

70-200/4.0 G AF-S ED VR (67o) 1,396.95 \$200 1,196.95*

70-200/2.8 G AF-S ED-IF VR II (77o) 2,396.95 \$300 2,096.95*

70-300/4.0-5.6 G (62o) 586.95 \$200 386.95

70-300/4.5-5.6 G AF-S VR 80-200/2.8 D with Collar (77o) 2,696.95 \$400 2,296.95*

200-400/4 G AF-S ED VR II (52o) 499.95 \$20 479.95

TC-14E III (1.4x) Teleconverter 549.95 \$50 499.95

TC-17E II (1.7x) Teleconverter 549.95 \$50 499.95

TC-20E III (2x) Teleconverter 549.95 \$50 499.95

* Stand Alone Rebate, No Purchase of DSLR Necessary

** When purchased with a D3200, D3300, D5200, D5300, D7100, D7200, D7500, D7600, D7700, D7800, D7900, D8000, D8100, D8200, D8300, D8400, D8500, D8600, D8700, D8800, D8900, D9000, D9100, D9200, D9300, D9400, D9500, D9600, D9700, D9800, D9900, D10000, D10100, D10200, D10300, D10400, D10500, D10600, D10700, D10800, D10900, D11000, D11100, D11200, D11300, D11400, D11500, D11600, D11700, D11800, D11900, D12000, D12100, D12200, D12300, D12400, D12500, D12600, D12700, D12800, D12900, D13000, D13100, D13200, D13300, D13400, D13500, D13600, D13700, D13800, D13900, D14000, D14100, D14200, D14300, D14400, D14500, D14600, D14700, D14800, D14900, D15000, D15100, D15200, D15300, D15400, D15500, D15600, D15700, D15800, D15900, D16000, D16100, D16200, D16300, D16400, D16500, D16600, D16700, D16800, D16900, D17000, D17100, D17200, D17300, D17400, D17500, D17600, D17700, D17800, D17900, D18000, D18100, D18200, D18300, D18400, D18500, D18600, D18700, D18800, D18900, D19000, D19100, D19200, D19300, 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12 Mega Pixels

FUJIFILM X30

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- 7.1-28.4mm f/2.2-2.8 (35mm equiv: 28-112mm) • SD/SDHC/SDXC Card Slot
- Film Simulation and Advanced Filters

Black or Silver #FUX30*



Black, Orange or White #OLSTC860*

NEW



16 Mega Pixels

OLYMPUS Stylus Tough TG-860

- Waterproof to 50' • Crushproof to 220 lb
- Shockproof to 7' • Coldproof to 14°F
- 5x Optical Zoom f/3.5-5.7 Lens
- 3.0" 180° Flip LCD • Built-In Wi-Fi
- SDHC/SDXC Card Slot
- Full HD 1080 Video at 60fps

Black, Orange or White #OLSTC860*



12 Mega Pixels

Panasonic Lumix DMC-LX100

- 4K Ultra HD Video at 30/24 fps in MP4
- Full HD Video at 60fps in MP4 or AVCHD
- 3.0" LCD • SDHC/SDXC Card Slot
- Full HD 1080 Video Recording
- Leica DC Vario-Summilux f/1.7-2.8 Lens
- Built-in Wi-Fi • External Flash Included

Black or Silver #PADMCLX100*

NEW



12 Mega Pixels

SONY CyberShot DSC-RX100 III

- 3.0" Multi-Angle Xtra Fine LCD
- 2.9x Optical Zoom • 11x Digital Zoom
- 8.8-25.7mm f/1.8-2.8 (35mm equiv: 24-70mm) Carl Zeiss Vario-Sonnar T* Lens
- MS Pro Duo/Pro HG-Duo, SDHC/SDXC Card Slot • Full HD Video • Built-In Wi-Fi with NFC

#SODSCRX100M3



20 Mega Pixels

Nikon Coolpix L840

- 3.0" Tilting LCD • Built-In Wi-Fi
- 4-152mm f/3.6-5.5 Nikkor 38x Zoom VR Lens
- 22.5-855mm (35mm Equivalent)
- SD/SDHC/SDXC Card Slot
- Full HD 1080p Video at up to 30 fps
- 76x Dynamic Fine Zoom Function

Black or Red #NICPL840*



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CF Compact Flash

	Delkin				Kingston				Lexar				Sandisk			
	500x	700x	1000x	1050x	Ultimate 266x	Ultimate 600x	800x	1066x	Ultra 50MBs	Extreme 120MBs	Extreme Pro 160MBs					
16GB	29.95	37.95	49.95	—	21.95	32.95	40.95	48.95	29.95	38.95	53.95					
32GB	44.50	54.99	74.95	89.95	30.95	48.95	51.97	79.99	49.99	58.95	83.39					
64GB	84.50	72.50	99.95	159.95	49.95	—	72.95	124.00	—	87.89	149.00					
128GB	—	194.95	214.00	254.95	—	—	181.14	279.95	—	199.95	269.99					
256GB	—	—	—	—	—	—	399.95	543.91	—	—	549.95					
512GB	—	—	—	—	—	—	899.00	—	—	—	—					

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UHS1 Ultra High Speed

	Lexar				Sandisk				Sony								
	Class 10 400x	600x	Micro 633x	Extreme 80MBs	Extreme 95MBs	Micro 80MBs	94MBs	Class 10 Micro	633x	90MBs	Extreme 60MBs	Extreme 90MBs	95MBs	Delkin	Kingston	Sandisk	
8GB	—	—	—	19.15	—	—	12.49	7.75	17.95	—	—	—	—	—	7.95	—	
16GB	14.95	14.60	23.95	24.95	29.95	24.95	18.95	8.99	31.95	19.95	14.99	—	—	64.95	21.24	—	
32GB	23.95	23.95	34.95	37.95	39.95	34.95	26.95	16.49	38.95	38.50	21.99	—	37.95	114.95	32.75	71.00*	
64GB	36.99	40.75	66.95	64.95	75.99	62.95	39.95	32.95	84.95	74.95	44.95	—	74.95	—	54.18	127.83*	224.99
128GB	—	81.95	—	137.95	—	—	78.95	—	149.95	—	147.95	—	—	99.95	—	—	—
256GB	—	171.89	—	—	—	—	—	—	359.95	—	—	299.95	—	—	295.87	—	—
512GB	—	—	—	—	—	—	—	—	—	—	—	599.95	—	—	—	—	* with USH-II Reader

Note: Not all devices support SDXC cards

XQD High-Speed for Nikon D4

	Lexar Professional 1333x	N Series 125MBs	Sony G Series 400MBs
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64GB	130.99	189.95	359.95

SDHC Secure Digital High Capacity

	Delkin Pro Class 10	Kingston Micro Class 10	Sandisk Standard Class 4	Sandisk Micro Class 4
4GB	7.95	—	4.95	4.75
8GB	9.95	7.99	5.95	5.95
16GB	10.95	10.95	14.95	8.95
32GB	17.95	19.56	15.95	16.95

UHS1 Speed Class 3 (U3)

	Delkin	Kingston	Sandisk	Sony
633x	90MBs	Extreme 60MBs	Extreme 90MBs	95MBs
94MBs	—	—	—	—
120MBs	—	—	—	—
160MBs	—	—	—	—

UHS2

	Delkin	Lexar	Sandisk
U3	280MBs	1000x 150MBs	2000x 300MBs
90MBs	—	—	—
120MBs	—	—	—
160MBs	—	—	—

Tripods with Ball Head

- Detachable Leg and Column Form Monopod
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- Rubber Feet & Retractable Metal Spikes
- Included padded carry bag

Anodized Aluminum Tripods

AT-3421	BA-106T	6.6 lb	59.5"	16.8"	2.7 lb	#OBAT3421106T	\$159.95
AT-3421	BA-106T	6.6 lb	61.3"	17.3"	2.8 lb	#OBAT3431108T	\$199.95
AT-3441	BA-111T	11 lb	63.4"	17.5"	3.5 lb	#OBAT3441111T	\$249.95
AT-3461	BA-111T	13.2 lb	65.3"	18.1"	3.6 lb	#OBAT3451113T	\$289.95
AT-3461	BA-117T	17.6 lb	67.1"	18.9"	4.5 lb	#OBAT3461117T	\$299.95

6x Carbon Fiber Tripods

CT-3431	BE-108T	8.8 lb	59.5"	17"	2.5 lb	#OBCT3431108T	\$399.95
CT-3451	BE-113T	13.2 lb	61.3"	17.1"	2.5 lb	#OBCT3451113T	\$479.95
CT-3461	BE-117T	17.6 lb	64.5"	17.4"	3.1 lb	#OBCT3461117T	\$479.95
CT-3481	BE-126T	26.4 lb	68"	18.9"	3.8 lb	#OBCT3481126T	\$499.95
CT-3521	BE-106T	6.6 lb	56.4"	14.8"	2.4 lb	#OBCT3521106T	\$379.95
CT-3531	BE-108T	8.8 lb	60.8"	15.5"	2.5 lb	#OBCT3531108T	\$399.95
CT-3551	BE-113T	13.2 lb	62.4"	16"	2.6 lb	#OBCT3551113T	\$469.95
CT-3561	BE-117T	17.6 lb	64.3"	16.8"	3.1 lb	#OBCT3561117T	\$349.95
CT-3581	BE-126T	26.4 lb	67.9"	16.9"	3.9 lb	#OBCT3581126T	\$369.95



BATTERY GRIPS

- Accepts 2 lithium-ion batteries to effectively double the camera's battery life (Batteries not included)
- The included AA battery holder allows you to use 6 AA batteries for added convenience (except BG-N3)
- Alternate shutter release button, main and sub command dials, and an AE-L/AF-L button are provided to facilitate shooting in a vertical orientation

for Canon 5D Mark III	BG-C9	#VEBGC9	.....	\$99.95
for Canon 5D Mark II	BG-C2	#VEBGC22	.....	\$69.95
for Canon 7D	BG-C4	#VEBGC4	.....	\$64.95
for Canon 70D	BG-C10	#VEBGC10	.....	\$84.95
for Canon 60D	BG-C6	#VEBGC6	.....	\$69.95
for Canon T5i, T4i, T3i, T2i	BG-C5.2	#VEBGC52	.....	\$67.95
for Nikon D7100	BG-N11	#VEBGN11	.....	\$89.95
for Nikon D5300	BG-N13	#VEBGN13	.....	\$59.95
for Nikon D3300, D3200	BG-N12	#VEBGN12	.....	\$59.95
for Nikon D600, D610	BG-N10	#VEBGN10	.....	\$79.95
for Nikon D800, D800E	BG-N7	#VEBGN7	\$89.95

PHOTOGRAPHY ACCESSORIES

FILTERS

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UV, Skylight (1B) Super HMC	27.89	26.49	33.00	52.95	44.99
Linear Polarizer	16.99	25.00	38.85	36.85	44.90
Circular Polarizer	23.95	29.95	34.95	42.95	38.90
Circular Polarizer HMC	39.95	49.00	55.90	69.00	104.90
"Moose" Warm Circular Polarizer	35.75	39.55	53.90	55.65	91.50
K2 Yel, X0 Yel/Grn, Grn X1, Or G, Red 25A HMC	23.95	28.35	41.95	46.35	60.90
Close Up Set (+1, +2, +4)	39.99	47.35	53.00	63.00	68.00
Close-Up Set HMC (+1, +2, +4)	52.68	64.88	73.00	100.68	145.35
Intensifier - Blue, Green Field, Enhancement (Red)	34.68	39.95	55.08	60.00	71.50
Neutral Density 2x, 4x, 8x HMC	23.88	19.95	36.95	30.99	34.80
Star 6, Star 8	16.89	22.50	43.35	49.90	46.68

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Circular Polarizer, Slim Circular Polarizer	115.99	121.99	151.99	180.99	195.99
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#5, #8, #11, #13, #15, #22, 81A, 81B, 81C	49.99	51.99	78.99	96.99	108.99
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FP4+ 125 120 Roll.....4.39

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100 135-36.....6.29

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400 120 Roll.....4.95

TMX 100 135-36.....4.95

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TMX 100 120 Roll.....4.49

3200 120 Roll.....5.99

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400H 120 Roll.....7.55

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Hector Rene's classical artillery

I'VE SERVED in the military since 2007 and now I'm a sergeant in the U.S. Army Reserve. During my time in Iraq, my camera became an extension of me; I obsessively photographed everything I saw and later used that work to apply to the School of Visual Arts in New York, where I studied photography under the G.I. Bill. I spent a lot of time looking at Dutch and Flemish still lifes from the 16th and 17th century, as well as classical portraits, and became interested in art history's narrative of power and affluence. The military objects in my work are borrowed from other veterans, remnants of their service. Although they may seem foreign, they are as banal to veterans as paintbrushes are to an artist.

—As told to
Sara Cravatts



Perspectives of power



Focal length: 15mm Exposure: F/11 0.6 sec ISO400 © Ian Plant

new

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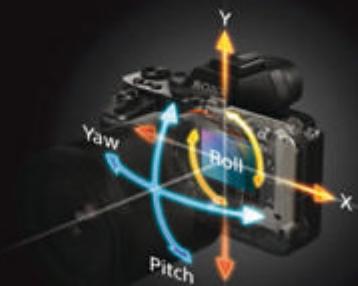


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